JUN 24 1918

THE BOSTON Medical and Surgical JOURNAL

OFFICIAL ORGAN OF THE MASSACHUSETTS MEDICAL SOCIETY AND OF THE NEW ENGLAND SURGICAL SOCIETY

Vol. CLXXVIII
No. 25

THURSDAY, JUNE 20, 1918.

Single Copies 15 Cents
Five Dollars per Annum

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The Massachusetts Medical Society.

ANNUAL DISCOURSE.

NOTE.—At an adjourned meeting of The Massachusetts Medical Society held Oct. 3, 1860, it was

Resolved, "That The Massachusetts Medical Society hereby declares that it does not consider itself as having endorsed or censured the opinions in former published Annual Discourses, nor will it hold itself responsible for any opinions or sentiments advanced in any future similar discourses."

Resolved, "That the Committee on Publications be directed to print a statement to that effect at the commencement of each Annual Discourse which may hereafter be published."

THE SOCIALIZATION OF THE PRACTICE OF MEDICINE.*

BY MYLES STANDISH, M.D., S.D., BOSTON.

BY the phrase, "The Socialization of the Practice of Medicine," I mean the tendency of the community as a whole to take over the care of the individual when he is ill.

Social, scientific and economic changes have come with great rapidity in the last few decades. They have already notably modified the practice of medicine and promise to do so to a much greater extent in the future. It is the socialistic tendency of these changes that I am about to consider in this discourse. We who practise medicine at the present time scarcely appreciate how recent are the conditions under which we do our daily work.

Until the establishment of the Massachusetts General Hospital in 1811, such an institution was unknown in New England. There were, it is true, pest houses, or lazarets, and almshouses, but these cannot truthfully be said to have been for the care of the sick; they were, rather, places for the segregation of cases of smallpox, the insane, etc., and were for the protection of the community rather than for the treatment of the persons who were compulsorily placed therein. Such places were managed by individuals to whom the town had practically auctioned off the job, the lowest bidder receiving the contract.

Not until 1830 did the Commonwealth undertake to care for any group of its citizens in need of medical care. In that year the State built the Hospital for the Insane at Worcester, and began to take this class of unfortunates from the almost inhuman conditions under which they were held in the almshouses.

Even then the idea of caring for people who were ill was not clearly accepted, as this institution was called an "asylum."

From the establishment of these two institutions we must date the great growth which has since developed in the care of the sick by the community in this Commonwealth. Both institutions were, in principal intent, for the housing as well as the medical care of the patients.

*Delivered before the Massachusetts Medical Society, at Boston, June 19, 1918.

Previous to that, the Boston Dispensary had been established, in 1796, for the medical relief of the poor, in order that the sick might be attended and relieved in their own houses, and that those who had seen better days might be comforted without being humiliated; that is, treated as paupers. It was incorporated in 1801, and by 1825 bitter complaints of its operations as a medical charity began to be voiced by the profession.

The next step was when, on the same day in 1846 that ether was first used as an anesthetic for a surgical operation at the Massachusetts General Hospital, the Board of Trustees of that institution gave formal recognition to an out-patient service which must have sprung up unauthorized before that date, because the Trustees voted that records should be kept of patients living outside who came to the hospital for treatment. Since that memorable day in 1846 the number of hospitals with out-patient services has rapidly increased. There are now 20 such hospital clinics in Boston, and the total number of individuals treated in a year is about 300,000. Of course, a certain proportion of these patients are either "rounders" or the same individuals going to different clinics for various complaints, but still it is probable that there are at least 270,000 people who receive medical treatment free of expense to themselves in this city every year—a large percentage of the total inhabitants of the city.

Suburban and other cities are rapidly reproducing this condition in their own communities, having about 33,700 individuals attending out-patient departments of hospitals in a year.

In 1864 the City of Boston established a hospital for the care of its own citizens, at the public expense, if necessary. This hospital in the fifty odd years of its existence has grown to be a great institution of 1088 beds, and received in 1916 an appropriation of nearly $800,000 from the money raised by taxes.

An out-patient department was immediately established at this institution, and soon had a very large clientele. Since that date many other large cities and towns have, directly or indirectly, established hospitals for the treatment of their citizens when ill.

In 1895 the State, which had already increased its institutions for the care of the insane from one to four, also established a hospital for dipsomaniacs and other drug addicts at Foxboro.

The institution at Tewksbury had changed its character, largely, from an almshouse to a large modern hospital for the treatment of such chronic cases as fell into the care and support of the Commonwealth.

In 1895, also, the Boston City Hospital established the first separate hospital for the treatment of infectious diseases, which, under the pressure of the Board of Health, tends more and more to receive a large and increasing proportion of all such cases in the community and which will undoubtedly in the future take care of all infectious cases excepting only such persons as can, by means of their wealth, or better housing conditions, give the best of care and isolation to their sick.

The State has passed laws which, in theory at least, compel each and every town, or group of towns, to maintain an isolation hospital for smallpox, and doubtless this law will be eventually broadened to include all other infectious diseases. Such a widening of the scope of all institutions for the care of the sick is the undoubted tendency of the day.

From 1895 to 1898 the Commonwealth established its great hospitals for the care of the tuberculous.

In 1906 the City of Boston established a municipal hospital for the same purpose, and in 1907 the Commonwealth passed a mandatory act compelling each city and town, or group of small towns, to maintain also a hospital for the tuberculous. The fact that in ten years the State has so largely taken over the care of the tuberculous is an illustration of the rapidity with which such revolutionary changes are adopted in recent years.

In the course of time the out-patient clinics, finding that the giving of medical treatment consisted in something more than the writing of prescriptions, and that they were at a disadvantage, as compared with the private practitioner, who through his domiciliary visits was able by demands, tact and management to control the surroundings and activities of his patients, established the social service personnel of their clinics. The Massachusetts General Hospital was the first and prime mover in this addition to the Hospital Staff. The Social Service at that institution was established in 1905, and has been the means of largely in-

creasing the efficiency of the Out-Patient Clinic, and more firmly and widely establishing public care of the sick. The example of the Massachusetts General Hospital has been widely followed by hospitals, both in Massachusetts and elsewhere.

The most recent example of this assumption by the community of the medical care of an ever-increasing proportion of the population is the establishment in 1916 by the Massachusetts General Hospital of a pay consultation clinic, to which physicians can bring their patients. The fee is small, the number of eminent consultants large, and there are whispers in medical circles that some of these gentlemen have found the burden excessive when the need of finding some time in which to support themselves and their families was considered. This service has at present been discontinued owing to the draft of the medical men into the military service. In this connection, it is interesting to note that the Boston Dispensary maintains a pay clinic for the examination of the eyes for errors of refraction.

There is also a constant tendency for public hospitals to erect private wards for the care of people of means.

The socialization of medical practice is again well shown in the changes or, rather, the additions to the services of boards of health. Our municipal boards of health and the State Department of Health, under certain conditions, maintain laboratories which give free service in the matter of bacteriological diagnosis, blood examinations, etc. The State Department of Health, at the demand of local boards of health, has for years furnished expert consultants to the local physicians in doubtful cases of smallpox, poliomyelitis, local epidemics, etc. It also distributes free, and in some instances itself manufactures, certain biological products used for medical treatment. In the first three months of 1917 it distributed diphtheria antitoxin, smallpox vaccine, typhoid vaccine, paratyphoid vaccine, antimeningitic serum, and silver nitrate ampoules. The latest extension of its service contemplates the division of the State into districts and in each one establishing a center for the care of venereal diseases. That such an arrangement is likely to become an active, widely extended, and eventually a compulsory service will be believed by anyone who has watched the trend of events in the assumption by the Government of the care of dangerous infective diseases.

Hospitals and boards of health are by no means the only institutions which have taken a part in this socialization of medicine. The public schools have had added to their staffs physicians and a corps of nurses whose duty it is to examine the children for defects or diseased conditions, to advise their parents to have them properly treated and to see that the advice is followed.

This latter element will ultimately be found to have no other result than the eventual assumption of such care as it advises. Indeed, a beginning has been made in at least one city in this State, where the examination of the school children's eyes and the furnishing of glasses at a discount from the ordinary retail price, and when necessary entirely free of expense, has been assumed by the community.

Free dental care of school children has been widely discussed and earnestly advocated, and the establishment of the Forsyth Dental Infirmary for school children in Boston is the first step in this direction and, in all probability, will not long remain unique.

The economic conditions of the 270,000 people who attend hospital out-patient clinics in Boston is indicated by the fact that the report of the special commission, created by the Commonwealth to study the question of social insurance, states that 45% of them earned from $15 to $20 per week in 1916, and that 7% of the Out-Patient Department patients of the Boston Dispensary and 11% of the out-patients of the Massachusetts General Hospital were earning from $20 to $25 per week.

The lengths to which the communistic conception of medical practice is already advocated is well illustrated in the so-called Framingham Experiment.

This town was taken by the National Association for the Study and Prevention of Tuberculosis, as a representative town with a fair proportion of manufacturing, commercial and residential population; and because it was already well organized socially and medically, one hundred thousand dollars was donated to carry on the work, and the community was to be stimulated to use every means to combat disease. In this experiment all the inhabitants, or certain large groups of them, were to be examined as to their physical condition. Indi-

viduals found to have impaired physical conditions were to be advised to undertake medical treatment. Salaried physicians were to be appointed to take charge of the school children, and everybody was to receive medical care and advice, either from their own physicians, or without expense to themselves. The people were requested to go to their physicians for examination, but as this alone would not bring about such a general examination as was desirable, physicians were brought into town to assist in the medical survey. The Society opened a free clinic for the tuberculous.

Dr. D. B. Armstrong, in charge of the experiment, in an article published in the *Journal of the American Medical Association*, September, 1917, states that there had already been established a permanent full-time medical and nursing service for the school children, with a general supervising nursing service by the Board of Health; a full-time medical and nursing service for at least half of the industrial population; provision for a full-time secretary with plans for nursing and relief service under the auspices of a local civic league. The same gentleman, in an article in the BOSTON MEDICAL AND SURGICAL JOURNAL, February, 1917, also suggests a dispensary service, built on the clinic for the tuberculous already established, which might be placed on a pay and self-supporting basis, that would include not only tubercular cases, but also general medical, school medical, infant welfare, and, perhaps, dental services. He says, "It is the hope of the Committee that further developments of the work will demonstrate that on a community basis, disease may be prevented and health created, thereby laying a permanent foundation for future social, economic and spiritual evolution," and further says, "that it ought also to be significant perhaps in its bearing upon the future of medical service in general."

It will need no argument on my part to convince this assembly that if half of the community were given a free medical and nursing service under a popular government, there would inevitably arise a demand from the voting population that the same benefits be extended to the entire people.

All the extensions of the community care of the sick, so far considered, have their origin in the humanitarian, that is to say, the medical side of the question; but for the last two decades a demand for governmental aid and authority in the extension of medical service has been pressed from the economic side, the argument, summed up in a phrase, being that the health and efficiency of the community was an economic asset of great value, and therefore the law should compel manufacturing corporations and the people themselves to provide for the prompt restoration of health to the incapacitated.

This demand in Massachusetts has resulted, as it has in many other States, in the compulsory insurance by employers of their employees against industrial accidents. This law was passed in this Commonwealth in 1911, and has been amended annually by each Legislature elected since that date.

The law, for the purposes of this discussion, is essentially this: It compels the employer to insure his employees against accident, and the insurance company pays, among other things, for the medical and hospital care of the injured. This at first resulted in the insurance company contracting with a physician in each district to care for all such cases and refusing, except under certain conditions, to allow payments to other physicians. This arrangement pleased neither the patients nor the great body of practising physicians, and in 1917 the law was amended to allow the selection of the physician by the patient, if he chose to exercise that privilege.

The State appointed an Industrial Accident Board, which awards the amount of compensation that should be paid each injured person, and determines the amount of the fee that shall be paid to the physician who had the care of the case. The Board shows the prevailing tendency of the times in the community care of the sick or injured in its liberal interpretation of what constitutes an industrial accident. It has decided that an injury received in a fist fight between longshoremen is an industrial accident, as longshoremen are necessarily rough fellows. Also that an optic atrophy supervening in case of tabes was due to the afflicted man's occupation as a fireman in a boiler room.

The communistic advance of the medical service idea was much in evidence a year ago, when an attempt was made to pass a radical compulsory health insurance act in this and other States.

The essential features of this proposed act, from the point of view of this discussion, were that all wage-earners, except agricultural employees and domestic servants, who earned $25 a week or less, should be compelled to join a local association for health insurance; that indemnity funds should be provided in part by the employers, in part by the employees, and in part by the Commonwealth, from moneys received from taxes. Other individuals, whose earnings were $25 a week or less, could voluntarily join these associations.

These local carriers, as they were called, were empowered to contract with a physician or physicians for the care of the sick, to provide medicines and nurses, orthopedic apparatus, eye glasses, etc., to the members of the association, and, with certain limitations, to the members of their families. They were also directed, when able, to build hospitals and sanatoria. This law, by the way, came over from our friends the enemy, as you will see later, and was taken bodily, except that it went higher up the wage scale than the German system.

What proportion of the community would be beneficiaries under the Health Insurance act proposed in this State, I do not know. I have heard it variously estimated as from 30% to 70% of the population of the State. But, whatever the actual number may be, there is no doubt that it would be a very large proportion in any industrial community and would cause a great disruption of the practice of all medical men in manufacturing centers.

This progressive tendency toward the socialization of the practice of medicine has not been peculiar to Massachusetts or America, but has become from decade to decade more and more apparent in Europe.

In England, early in the 19th century, there were mutual aid societies formed among wage-earners to insure themselves against various financial disasters which may happen in the lives of people whose income is such that the bare necessities of life practically consume their entire earnings. These societies gave their members medical aid. They became known under the generic name of the Friendly Societies. They were popular, and it was finally discovered that the organization and management of such societies gave a proper, but material addition to the income of the men who had charge of their activities. As a consequence, many such societies were organized, and there arose quite a competition for members, and the managers eventually canvassed for and accepted members whose incomes were much larger than those for whom the societies were originally intended. Door-to-door canvasses were made for members, and I have seen hand-bills asking for members in the windows of small shops in English provincial cities.

These societies contracted with a medical adviser for treatment of the entire group. Competition among the medical men brought the salaries down to a very low level. Those of you who are accustomed to read the *British Medical Journal* will remember the periodical appearance, for years before the National Insurance Act, of lists of Friendly Societies, with the statement that the salaries which they paid were unfair for the amount of work exacted, and asking all members of the profession to refuse employment under the societies named in the list. It was a burning question with the physicians of England for a quarter of a century.

The first compulsory action of the English Government in the direction of medical care of wage-earners was when the Employers' Liability Act was passed in 1880. The last Workmen's Compensation Act was passed in 1906.

The similar laws in Massachusetts and other American States were modelled on these laws, and are so well known to all physicians that their provisions need not detain us at this time.

The English Parliament in 1911 enacted the National Insurance Act. This law is compulsory. The funds are derived seven-ninths from the employers and the beneficiaries, if they are men, and three-fourths if the beneficiaries are women. The balance is derived from moneys raised by taxation. The individuals who are thus compulsorily insured comprise all "employed" persons, British or alien, from 16 to 70 years of age. All other persons engaged in some regular occupation, and who are wholly or mainly dependent for their livelihood on the earnings derived from that occupation, can voluntarily insure under the Act, provided their total income from all sources does not exceed 160 pounds a year. It is also provided that persons who have previously been "employed" and insured for five years or more, may, subsequent to said employment, volun-

tarily be insured without limitation as to income.

The medical benefits were medical attendance and treatment, medicine, medical and surgical appliances, treatment in sanatoria for tuberculosis, and maternity benefits.

When the law was first proposed it was planned that the Government should organize associations to administer the act by localities, trades, industries and industrial organizations. This, of course, raised a great protest from the Friendly Societies, which ended in the Government practically accepting the existing societies as the agents for the administration of the law, the Government reserving only the right to organize such associations as might be necessary where Friendly Societies did not exist, or where the insured preferred not to join them.

The medical profession was very much agitated by the proposition, and the British Medical Association came almost to the point of threatening a general strike unless the remuneration was made satisfactory to them.

The terms first proposed by the introducers of the law were 4s. per year per capita. The Cabinet officer having the matter in charge said that the Friendly Societies paid from 2s. 6d. up. The highest, by the way, was the Postal Employees Association, which paid 8s.—two dollars a year for all medical care and medicines.

Finally, the British Medical Association was pacified by a per capita payment of 6s. 6d. The sixpence was supposed to cover the cost of medicines.

Another complaint of the medical men against the proposed act was that the law contemplated the continuance of the old and vicious contract system, which enabled the societies to contract with one or a few medical men, whom they could discharge if they did not conduct their medical practice in such a manner as to be advantageous to the funds of the society. This point was fought bitterly both by the profession and the Friendly Societies, and the final result was the so-called "panel" system, whereby any respectable physician could signify his willingness to serve on the panel, the insured person to be free to select from the panel the physician he preferred. The physician was to receive from the societies the 4s. and 6d. of all those who selected him for that year.

In 1914 there were insured under the National Insurance Act in England 13,643,000 persons, and in May of that year there were 16,000 physicians on the "panel." About half of these gentlemen had not more than 500 persons on their list; 30% had from 500 to 1000 persons; 16% had from 1000 to 2000 persons, and 4% had more than 2000 persons. It must have been one of these latter gentlemen to whom a medical man in Oxford alluded when I asked him in 1912 how the law was working. "Oh well!" he said, "some of the men do pretty well. A friend of mine over in Wales sometimes sees 80 patients in his surgery of an evening." The total cost of all the medical benefits paid for under the act was 5,616,000 pounds in 1914.

Compulsory health insurance was, however, first instituted in that land of compulsion—Germany. The first law was passed in 1884, and included miners and others engaged in dangerous occupations, but the scope has been broadened from time to time, until a bill that was passed just before the opening of the present war covered all manual workers, foremen, commercial employees, domestic servants, agricultural laborers and government employees. Other than employed individuals, with the same income, can join the societies. The upper limit of wages was raised by this bill to $625. In 1885, 10% of the population were in these societies, which number was increased gradually, until, in 1910, they contained 22% of the population, to which it was estimated the last amendment to the bill would add another million people.

Previous to the institution of compulsory health insurance in Germany there had existed, as in England, Mutual Aid Societies which had, as one of their principal benefits, medical aid. Indeed, they had existed in Germany for a much longer period of time than in England, and they were utilized to some extent under the Health Insurance Act, but the bulk of the beneficiaries were organized into new society groups arranged according to occupation, and all workers were compelled to join a particular society, in accordance with their employment.

The doctors complain that most of the members of these societies take very little part in their government, and that the management falls too often into the hands of the political

group called "social democrats." The direct expenses are borne by the employers and wage-earners, although the Government spends considerable money in general oversight and management.

The services of a physician are provided in accordance with the regulations established by each fund; the usual plan is for the society to make contracts with a number of physicians, who give their services in return for an annual sum, fixed in advance, or for a specified sum per case, also fixed in advance. In no case is the charge fixed on the number of visits or number of prescriptions. Some of the societies, in order to secure low rates of fees from the physicians, provide only the services of a limited number of physicians. The competition among the physicians to secure the position of medical officer in such cases has resulted in reducing the cost of the service to the funds to a very low level, and the fees have often been so small as to produce vigorous protests from the medical profession. This protest has resulted in numerous "doctor strikes," in which the physicians have refused to work for these societies, and the strikes in some places have been so strenuous that the physicians not only refused to act for the societies, but also even to treat as a private patient any individual insured in them.

I have found allusions to 1022 of these strikes, of which 921 were decided in favor of the physicians, 11 in favor of the societies, and the other 90 were pending at the time of the compilation.

Some of the societies make contracts with a large number of physicians, and the insured person is allowed to select the physician he wishes to attend him.

This comparatively free choice of a physician has generally been the result of a desperate struggle between the societies and physicians of that particular locality. The most notable example of this arrangement is in Leipsic, where the society has contracts with some 400 physicians,—the list includes many specialists in all branches of medicine, including dentistry. The strike to obtain this condition was very bitterly fought. It took place in 1904. The demands of the physicians were an increase of fees to $1.00 per member without dependents, and $3.00 per member with dependents,—little enough surely,—a free choice of physician, and that agreements with the individual physician should not be terminable at the will of the society.

The list of the demands of a labor union strike in this country often covers practically the same demands.

The physicians terminated their service on April 1, 1904. They were loyally supported by practically all the other physicians in Leipsic and the neighborhood. The University medical professors and teachers refused to treat society patients in the University clinics.

The society fought back by importing physicians, to whom they guaranteed an income of $1500 a year. They established three consultation centers under the charge of whole-time medical officers.

The physicians took steps to discourage doctors from entering the service, and of 75 who agreed to come but 62 came.

The supervisory authorities were petitioned to intervene and compel the society to provide adequate medical service. The authority decided that at least 112 physicians were necessary for the proper treatment of the members. The society was unable to fulfil the requirement, and the much-quoted present arrangement was agreed upon.

At Cologne there was a similar contest, in which the society was victorious, and at the time of my latest information it had in its employ 70 or 80 physicians, including specialists—all except about 15 of whom had been imported by the society. Some of them were doctors that had previously been employed by the Leipsic society in its struggle with the local physicians, of which I have spoken. Three hundred physicians of Cologne refused to serve the societies. These gentlemen belong to the "Leipziger Verband," which is an association of 23,800 physicians, 95% of the profession in Germany, who have organized themselves under that name into what is frankly a trade union. The details of the methods of paying the physicians by the societies varies widely, but it is an interesting fact that in some instances the local organization of the physicians receives the total amount paid by the societies for medical service, and divides it among the practitioners in accordance with the amount of service they have given.

The average amount paid by the societies in Germany for medical service in 1910 was $1.37 per person per annum.

These insurance societies in Germany also

furnish orthopedic appliances, false teeth, false eyes, spectacles, etc. They pay for the care of their members in hospitals and institutions, often less than the cost to those much-imposed-upon organizations.

The law allows and some of these societies have already established hospitals, convalescent homes, sanatoria, etc., of their own.

The enactment of laws for compulsory health insurance has spread rapidly over Europe. Between 1884 and 1913 the following countries had established such systems: Germany, Austria, Hungary, Luxemburg, Norway, Servia, Great Britain, Russia, Roumania, and the Netherlands, and from 30 to 33% of their population have been withdrawn from the domain of private practice.

Compulsory health insurance for certain groups of wage-earners has been adopted by Belgium, Italy, France and Spain, while laws for subsidized voluntary health insurance, covering a large proportion of the population, exist in Sweden, Denmark, Belgium and Switzerland.

No American State has to my knowledge enacted such a law, although in Massachusetts such action was strongly advocated by Governor McCall.

Massachusetts, in 1917, appointed a special Commission to consider the subject, which made its report to the Legislature this year. It did not advise the adoption of compulsory health insurance at the present time, but it did advise the enactment of three laws which are interesting from the point of view of this discussion.

The first recommendation was that a sum of money be appropriated by the General Court to be expended by the trustees of the General Insurance Guarantee Fund for the purpose of further encouraging and promoting the organization of mutual benefit associations among the employees in industrial plants in Massachusetts, in order to afford them an opportunity to insure themselves against sickness and disability, at their option. This law is on its passage through the Legislature at this writing.

The formation and successful operation of such associations would be the first step towards compulsory health insurance, for the history of governments will show that whenever an association of philanthropic people, or an association for financial gain, has broken the ground in a new direction in supplying a need of the community, the government will first regulate, and eventually step in and take over the work, to the practical exclusion of private effort. This has been the result in education, water supply, postal service, hospitals, and transportation, in many countries, and that the tendency is still active is shown in the agitation in this country that the Government take over the telegraph and telephone lines and public utilities.

The Commission on Social Insurance thus not only looks forward to compulsory health insurance, but advocates a still more direct assumption of the medical care of the community in another law which it proposes: An act entitled to provide free medical treatment for school children, which provides that such medical and surgical care shall consist of medical diagnosis and the medical and surgical treatment of the eyes, ears, noses, teeth, throats, lungs, posture and nervous systems of the pupils, the cost to be apportioned between the cities and towns and the Commonwealth, in such proportions as the General Court shall determine.

If the General Court should pass such a law, it is evident that in school children, with the single exception of the heart, private practice would be limited to the disorders of such organs as nature has placed below the diaphragm.

The third recommendation of this Commission was that the State Department of Health might provide laboratory and x-ray equipment for the out-patient departments of hospitals and dispensaries, under certain limitations, but specifies that the control of and the regulations in regard to the use of these appliances should remain in the hands of the authorities.

Those of my auditors who have patiently followed thus far, have seen a steady and purposeful extension of public service in medicine going on in this country and in Europe for a century. A social movement in a service so vital to the community, continued for so long, is, without doubt, destined to continue. When 30% of the community receive medical treatment free, or for a very small sum, there will undoubtedly arise a demand for the extension of the same system, or some modification of it, to the entire population. An extension of such service, with a demand by the people for medical care and treatment at a minimum cost, would result in medicine becoming more and

more a function of the State. In fact, the State already demands of every physician much service, in the way of notification of births, deaths, contagious diseases, venereal diseases, and cocaine and morphine addicts, and most of this service is now required in America without pay, although in England the physician is allowed 2s. 6d. for each notification filed.

The logical result of such a situation must be that all medical men will eventually become government officials.

That medical men are destined to become government employees may seem a prophecy, the fulfilment of which is far away in the future, but there are already portents in the sky. In England, under the stress of war, there has been a relocation of medical men in civil practice so that all districts may be served. In New Zealand, that laboratory for the working out of all sorts of socialistic experiments, the medical men themselves have asked the Government that the country be divided into districts, that a physician be assigned to each district, and that the Government guarantee the medical practitioners a certain minimum, but a living income; and I have, this spring, read in a newspaper despatch that the Prime Minister of England, Mr. Lloyd George, replied to a visiting delegation that after the war he would be willing to consider the "nationalization of medicine."

Government official salaries to employees are now, and always have been, regulated to an amount that is barely sufficient suitably to maintain the recipients in their station in life without the ability to accumulate savings for old age, which is, no doubt, the reason that there has arisen in Massachusetts, as elsewhere, a persistent demand for pensions upon retirement for teachers, firemen, policemen, clerks, and all classes of public employees.

When the great bulk of medical practitioners become comparatively poorly paid government officials, the great cost of a medical education, as compared with other professions, will bring a new factor into this problem.

The broadening of the field in medicine in the last quarter of a century has added to the expenditure, both of time and money, which is required of the student in medicine, as compared with other professions.

Many States now require that the physician to be licensed to practise medicine shall have devoted six years to study, after leaving the high school, before he receives his medical degree, viz., two years of college and four in the medical school. That this requirement will soon be universal is assured, and to this there is no doubt that another year in a hospital interneship, or its equivalent, will soon be added.

This is nearly twice the time required in other professions.

In law, in this State the student may get his degree in three years from the high school. This is true in most divinity schools. University schools of business administration often admit from the high school to a two or three years' course.

Architects, engineers and chemists receive their degrees from the Massachusetts Institute of Technology in four years from the high school.

In the actual expenditure of money for tuition, of all professions, medicine demands the highest fee.

At Harvard, in the Law School, Graduate School, School of Business Administration, etc., the fee is $150, but in the Dental School it is $200, and in the Medical School proper it is $225, with a matriculation fee and numerous laboratory fees in addition.

These higher fees for medical tuition are fully justified. The cost of present-day medical education is appalling to the smaller universities of the country.

To cite the Harvard Medical School: The cost to the University of maintaining its Medical School last year was $494,115.95. The School had 357 students, which was, roughly, $1385 per student.

It is true that the School gave instruction in certain courses to 94 dental students, and to six students studying for the degree of Doctor of Public Health, but as the Dental School paid the Medical School only $14,000 for their instruction, that fact did not very materially affect the cost per student to the Medical School.

The amount of time required, the cost of living during the student period, as well as the necessary tuition fees, are likely to increase in the future as they have already increased in the last generation, or longer; and if the rewards for the student in his lifelong practice are, by converting the practice of medicine into a governmental occupation, to be very moderate, will not the attractiveness of medicine as a

means of livelihood diminish, and will not the parents be apt to decide that a medical education is a poor investment of so much capital?

It would seem that such must be the natural result, and that the number of young men entering the profession would fall far short of the number necessary to care for the community.

If this should prove to be a correct estimate of the situation which would arise, I see but one solution of the problem, and that is, the Government will have to undertake the entire expense of the education of medical men, as it now does that of army and navy officers at West Point and Annapolis; pay them during their working days, and give them sufficient pensions after retirement to support them in old age. Nor is this soluton as radical as it might seem at first thought. The Commonwealth of Massachusetts at the present time furnishes a free education to the members of one great profession, and does so for the same reasons that, in my opinion, will force the State to assume the cost of educating its medical men. I refer to the public school teachers, who are educated by the State without cost for tuition, books, etc., and with a nominal payment for board and rooms in our normal schools.

There will, of course, always be private practitioners of medicine, for men will arise in the ranks of the profession of such preëminent reputation and skill that people will always be willing to pay them abundantly for their advice and treatment.

These men, even though educated at government expense and assured of a livelihood, will resign from the public service, as great engineers, educated at West Point, leave the Army for higher remuneration, as directors of great works of civil construction, and as naval constructors leave the Navy to accept much higher salaries from rich ship-building corporations.

There will always exist in the community a group of well-to-do people, who will prefer to have free choice of their medical adviser, just as at the present time there is a considerable group of people who prefer to send their children to private schools, and, in my judgment, the group of people exclusively employing private medical practitioners in the future will prove to be about as large a proportion of the entire community as the group which at the present time send their children to private schools.

This picture that I have drawn of the conditions of medical practice in the future is, in my opinion, a logical projection into the future of the lines of change in the methods of medical practice which have actually been adopted by the community and the profession in the last hundred years. These changes have been the result of an awakening of the public conscience as to the right of all citizens to have proper medical advice and attendance; to a constant tendency of the Government to regulate, control, and, in the end, supply all public service; to the fact that medical knowledge has become so broadened that it is impossible for any one man to be expert in all its branches, and thus has led the people to regard medical service as a service that no one man can fulfil, with the consequent loss of the sense of friendly protection and personal care which made the patient look upon his physician as a wise family friend.

The changes also have been largely due to the great aggregation of people in large commercial or manufacturing cities, where individual personal effort for the aid of one's neighbors seemed so inefficient that organized corporate effort appeared to be the only effective way in which to meet the problem, with the result that socialistic and impersonal ideals have usurped the places of the more personal and friendly ones of our forefathers.

None of these causes of change are likely to diminish as time goes on, therefore organized, systematized, efficient medical service is likely to be developed—with, alas! a little less of the personal human element in it.

The community, in its governmental, commercial, social and individual units, will, in the future, as it has in the past, need medical advice, and the learned men who give this advice, must be educated and supported by those who benefit by their skill, but the methods, both of education and payment, will not be those of the present day.

Physicians in the future will be just as eager, and perhaps even more so, to prevent disease and alleviate suffering, but that the conditions under which they do their work will change, radically change, seems inevitable.

Massachusetts Anti-Tuberculosis League.

FOURTH ANNUAL MEETING, BOSTON, APRIL 11, 1918.

Introductory Remarks by the President.

By Vincent Y. Bowditch, M.D., Boston.

Our present meeting is held after a year of the great stress of war, with our minds and hearts fixed upon matters far from the ordinary. The ranks of our active workers have been largely reduced. Not only have our vice-president, Dr. Roger I. Lee, and our treasurer, Mr. Arthur Drinkwater, been called to active military duties, but our Executive Secretary, Mr. Seymour H. Stone, to whom the League owes so much of its success, has patriotically directed his energies for an indefinite period towards special war work. This has, necessarily, thrown greater responsibility upon those who are left behind,—a burden, however, which they have gladly shouldered in their endeavor not only to keep up the standards of our League, but thus indirectly to help our country in the present great crisis in its history.

In spite of these hindrances to the best work, I think it can be said that we have had a year of usefulness, in which we have done more than merely "mark time," and have succeeded in keeping before the public the necessity of never-ceasing activity in fighting tuberculosis.

In the early autumn it was suggested by the Executive Secretary of the National Tuberculosis Association, Dr. Charles J. Hatfield, that our League should institute a series of lectures to be given by specialists in tuberculosis to the military medical staffs at the cantonments and camps in Massachusetts. Following this suggestion, under the auspices of the League, several specialists of national repute have visited Camp Devens and have given interesting lectures upon various phases of the tuberculosis question. The League is especially indebted to Dr. E. R. Baldwin of Saranac Lake; Dr. G. Benjamin White of Otisville, N. Y.; Dr. A. K. Krause of Johns Hopkins Hospital, Baltimore; Dr. Donald B. Armstrong of the Community Health Demonstration at Framingham, who kindly took the place of Dr. David R. Lyman of Connecticut, during the latter's service abroad, and Dr. Charles L. Minor of Asheville, N. C., who had kindly consented to appear, but at the last was prevented by illness from so doing.

These lectures were given at the Base Hospital, and were attended by large numbers of the medical men stationed at Camp Devens. An attempt was made to have instructive lectures given to the soldiers themselves in the Y. M. C. A. halls, but the plan was later placed in the hands of the military medical authorities at the cantonment as being a better method of reaching the soldiers than through the medium of "talks" by civilian physicians. By personal observation, when accompanying these gentlemen to Camp Devens, I became convinced that the lectures as given were productive of much interest and benefit to the medical men. However, it seemed much wiser to leave the instruction of the soldiers themselves to the military medical authorities,—the psychological effect of a uniform upon the minds of young listeners being very marked and much more productive of respectful attention than is often the case when the ordinary civilian tries to hold their interest in these matters.

Another feature of war work touched upon during the year was a series of letters sent to the various anti-tuberculosis associations throughout our State, urging upon them the importance of following up cases which had been rejected by recruit examiners on account of suspected or confirmed tuberculosis. The importance of having this often difficult task done with care and tact was emphasized, the object being to record, as far as possible, these rejected cases; to see that they were properly classified at the office of our State Department of Health, and steps taken for proper treatment. How far this suggestion has met with response I am not in a position yet to say, but the large number of cases recorded at the health department warrants the belief that our members have been helpful throughout the State in bringing this about.

In this connection it seems well to speak of the ever-growing importance of the work now presided over by Miss Bernice M. Billings, to whom is entrusted the after-care of the tuberculous patients discharged from our state sanatoria. The members of our League can do no better work than by bringing this before the communities in which they live. Nurses are greatly needed in the rural districts, and proper means of conveyance for them are essential. Many a case is now neglected because it is impossible for any one nurse to reach places which are remote from the centers of popula-

tion. A small Ford car for the use of nurses in these rural districts would greatly enhance the quantity and quality of the work done by them. Two or three of the larger districts, through private sources, have already obtained such cars, with great help to the amount and quality of service rendered, as well as to the physical well-being of the nurses themselves. I cannot urge too strongly upon our associations throughout the State the necessity for developing this work. It must be done for the present, at any rate, by private subscription, even if the State later recognizes its importance and makes proper provision for it. In every community there are people who, when properly approached, will give money for such purposes.

The war is steadily and surely making us realize how the business of looking after cases of tuberculosis must grow in the immediate future, and an increased energy on the part of all our state local associations is absolutely essential. The necessity of financial aid in the rural districts and elsewhere can be made to reach the public by notices placed in all local newspapers in the State. By such means we may hope to increase the efficiency of the work of our League during the coming year.

An effort was made during the last season, through the suggestion of one of our most active workers, Mrs. Mabel Greeley Smith, of Cambridge, to have the secretaries or other active members of local associations send in to the central office the general methods of procedure in each association, so that a comparison could be made which would be helpful to all. I must confess to disappointment in the lack of response thus far to this appeal,—only two or three replies to letters having been received during the winter months as to methods of work. It is to be hoped that during the coming year some plan can be formed by which a comparison of methods may be established which will be productive of good to the whole League.

It is fitting that attention should be especially called at this meeting to one very important feature of anti-tuberculosis work in Massachusetts, which marks, in my opinion, a decided advance in our methods, and will, when developed, be productive of good to the patient, not only in a physical, but also in an economic sense.

I refer to the recently completed "Workshop and Recreation Building" established at Rutland, Massachusetts, under the auspices of the Rutland Private Sanatorium Association, for the benefit of patients who are obliged to live in Rutland, either at private sanatoria, boarding houses, or in their own homes. In this building, opened last autumn, opportunity is given not only for recreation, so essential for people who are exiled from their homes, but, when necessary, for earning money by weaving, basket- and pottery-making. Of the beneficial effect, both mental and physical, of such methods, I hardly need to speak, but this work should be widely known and encouraged by all philanthropic people and by those who are especially interested in the welfare of the tuberculous and the anti-tuberculosis movement. "Seeing is believing," and I wish to take this opportunity of urging upon everyone the necessity of visiting this institution in Rutland, the formation of which is largely due to the courage, persistency and foresight of the physicians who are in charge of private sanatoria in Rutland, and their laymen associates; an inspiration to those who visit it. The place is one which should grow to large dimensions and make Rutland the Saranac Lake of Massachusetts, where those who are afflicted can go with a prospect not only of regaining their health, but also of remaining there in suitable homes and with means of diversion and occupation which are necessary for their comfort and welfare. It should be stated, perhaps, that this project has nothing whatever to do with the state institution, but has been started and aided by private subscriptions only.

Another important phase of anti-tuberculosis work is the necessity of accommodations for people of moderate means who cannot afford to go to expensive sanatoria and who shrink from the publicity of state sanatoria. This need is never more apparent than now. So far as I know, the Sharon Sanatorium, now beginning its twenty-seventh year, is the only one in New England where, for $10.00 a week, women of refinement, but of limited means, can obtain the same sort of accommodations and medical attention as are found in more expensive sanatoria; and it is continually brought to my attention what a lamentable lack there is of small institutions for this special type of patient. They involve, of course, dependence upon private sources largely for their mainte-

nance, the small price asked being utterly inadequate to meet expenses. Similar institutions to that at Sharon are needed not only for men and women of the civilian class but, in consequence of the war, for many previously unknown and unsuspected cases of tuberculosis among the military men, for whom this class of sanatoria will be more than ever necessary.

The military authorities at Washington are already planning sanatoria and hospitals for tuberculous soldiers, where large numbers can be taken care of, but in the near future there will be military and naval commissioned and non-commissioned officers of limited means who will prefer the privacy of institutions not under governmental control. For such, the one recently incorporated by a number of well-known physicians and laymen, and about to be built in close proximity to the Rutland Workshop and Recreation Building, is a striking example of what is needed. Already the project has received the generous support and endorsement of a number of prominent Massachusetts physicians and laymen; of the President and Executive Secretary of the National Tuberculosis Association and the President of the Framingham Health Community Association. Ground has been broken for the buildings, and with the steadily growing sums of money subscribed, the managers hope to see, before many months, the completion of a model institution which *shall not be used for profit*, but in which a sliding scale of prices can be asked sufficient to meet expenses; any excess of income to be devoted to the increased scientific efficiency of the sanatorium. The sanatorium will be under the superintendence of Dr. Bayard T. Crane, of Rutland, whose long experience and indefatigable energy in tuberculosis work are well known.

Military and naval men who have developed tuberculosis are already applying for places in the town of Rutland where the number of proper accommodations for such people is quite inadequate.

With such endorsements I feel that private philanthropy can find no better outlet than in supporting this admirable and much-to-be-desired scheme. Its hoped-for consummation in the comparatively near future will be another step towards making Rutland the Mecca of New England, towards which tuberculous patients will turn their faces more and more. It will be another milestone in the steady progress Massachusetts has made in anti-tuberculosis work in the last quarter of a century.

Lack of time prevents me from discussing many problems of interest in our work, but I wish now to touch upon one subject of importance which, in the study of tuberculosis, comes under the head of what we call "preventive measures"; viz., open-air schools. With our knowledge, obtained by long experience, it would seem to be a foregone conclusion that fresh air pushed to an extreme degree is not only beneficial in adult life to the pronounced tuberculous patient, but quite as much so to those who show symptoms of lowered vitality in child life when the groundwork of subsequent trouble may be present. In spite of the fact that, for some not well-explained reasons, a few open-air schools both here and elsewhere have been closed after trial, we find that the opinion of observers of large experience, and whose judgment can be relied on, is unhesitatingly and enthusiastically in favor of such schools. Two of those best known in our own State are situated at the Westfield Sanatorium and at the Sassaquin Sanatorium in New Bedford. In a recent correspondence with Dr. Henry Chadwick of Westfield, and with Rev. William B. Geoghegan of New Bedford, I find them both warmly in favor of such schools as a result of their experience. Although Dr. Chadwick is apparently conservative as to the wisdom of subjecting children to the severest cold of winter, yet the system, as used at Westfield, allows the freest circulation of outside air in the rooms by opened transoms, with artificial heat to temper the cold, thus enabling the children to use their hands and bodies with greater ease and comfort. In New Bedford, the success of the school at the Sanatorium is such that Mr. Geoghegan, one of our most active members, is a thorough believer in establishing open-air schools in the city itself where all children who show lack of vital power shall be placed. My own opinion, based on an experience of over twenty-seven years with sanatorium treatment, has long since convinced me that such methods should be established far and wide. At the Sharon Sanatorium, hitherto used for women only, through the generosity of friends, a new Children's Pavilion is about to be opened as a combined sanatorium and school for children between six and fourteen years of age, who are either showing a lack of vitality or who have

already symptoms of glandular or early pulmonary tuberculosis requiring close supervision and treatment. In spite of occasional attempts to prove by comparative statistics that children do no better under such conditions than in so-called "well-ventilated schools," the atmosphere of which is often atrocious, concrete instances of facts proving the contrary are more convincing than columns of figures. In support of this, I should like, in closing, to quote from a letter received last year from a former graduate of the Sharon Sanatorium, who, after a brave fight for three years, left Sharon seventeen years ago to resume her place as teacher in a public school in one of our large Massachusetts cities. She wrote: "You will be glad to hear that in the last fifteen years I have scarcely lost a day from my teaching, and, more than this, I always impress upon my children the value of fresh air as taught me at Sharon. This winter I kept my schoolroom windows open all the time and not one of my scholars was kept at home with a 'cold,' as against epidemics which occurred in most of the schools in my city."

Evidence like this, which is not exceptional, teaches one to be very chary of accepting theoretical arguments *pro* and *con* which are not based upon practical knowledge and experience.

I trust that these opinions may be of use to our League in urging the adoption of similar methods throughout our State and elsewhere.

In conclusion, I wish to call the attention not only of our own members, but of the public generally, to the great work of the National Tuberculosis Association and to the necessity of generous support from the citizens of the United States. The recent call for aid should meet with generous response on every side. By becoming a member of the National Association, for $5.00 a year, one may feel that he is doing his small share in bringing under control the disease which still causes the largest mortality list in the world.

ADEQUATE COMMUNITY ORGANIZATION FOR HEALTH EDUCATIONAL WORK.

BY MARY A. ABEL, FRAMINGHAM, MASS.,

Educational Assistant, Framingham Community Health and Tuberculosis Demonstration.

THE writer of an editorial in a recent publication said in regard to the repeated use of the word "intensive," that, after all, it simply meant doing things "well"; that in the effort to use the newer word more often the force of the other simpler and older word was lost sight of. We are apt to think that we are doing things better than usual or in a new way when they are merely being done well.

It is this well-done method which every anti-tuberculosis organization in the country seeks to see carried out in its own community,—a method which will, in its educational work, reach every man, woman and child of all stations. Nor has the program rendered the highest usefulness to the community until it has, acting as a dragnet, turned up every possible means of educating the public.

A thorough piece of organization for the purpose of educating the public in the different phases of anti-tuberculosis work will use every available grouping of society, every agency, every line and channel in spreading the gospel. There will be found a distinct channel for every group of individuals through which they can be reached and, failing every other means, personal evangelism comes into play. This is a slow process, however, though certainly the most valuable; but it is difficult to imagine a man, woman or child who has not in some wise a community connection. Those homes, for instance, not represented in the school census will have connections with organized societies, those not in industry have other contacts, and so on.

Upon sensing the personality of any community it will be found that every village, town or city has certain agencies, more or less perfectly organized, available for publicity purposes. The schools, churches, newspapers; organizations of all kinds—including social, religious, fraternal, education, business, and philanthropic; the theatres, billboards, business houses, public buildings and factories are some of the more usual ones, and almost every town will certainly yield some or all of these. These should come in for their share, and no scheme is complete without having tried out fully their resources.

It seems to me we do not realize the incompleteness of our work until we have made a complete catalogue of the many avenues at our command. Because of personal experience right here I venture to say that the average worker, no matter how well she knows her community, will be appalled at the amount of or-

ganized material there is ready for her use. In a survey of the organizations for women and girls exclusively in Framingham we were amazed to find they numbered sixty. Think of the valuable material already amassed and of the possibilities for work with that group alone!

That brings us to one of the first and most important steps in any educational scheme,—the tabulating of data concerning such organizations as may be used in educational propaganda. It is difficult to estimate the value of such information to a worker. In Framingham we prepared an outline questionnaire called "Know Your Own Town," dividing it into chapters dealing with the history, government and finance, housing, health, recreation, industry, immigrants, child welfare, delinquency, charities and organizations of the town. This was turned over to the principal of the high school, who, in turn, divided it among the various classes in the school according to their particular study. Thus to the class in civics was given the chapter on history and government, to the science class that on health, and to the physical culture classes the subject of recreation, etc.

The subject of health was accented, of course, and this piece of work has introduced us and our scheme for health to practically every high-school student in town. In addition to the knowledge every student is going to get out of doing this piece of investigation, when published the pamphlet should form a valuable index for the citizen who wishes to know his or her own town.

That was our first entrée into the schools, followed by the second piece of educational work,—that of forming Health Crusader Clubs in every grammar grade of all the schools, beginning with the fourth grade. To you who have not initiated the movement in your town, I wish to say that, in my opinion, a very valuable opportunity is being neglected. The "playing a game" spirit in the Crusader organization makes it attractive to the child; all the time he is forming those very valuable health habits which will remain with him. The teaching of simple good health and hygiene habits to children is one of the most vital things in all anti-tuberculosis work.

The eight health chores the child agrees to do every day are such simple things as brushing his teeth, drinking a certain number of glasses of water, washing his hands before every meal, being in bed a required number of hours and keeping his windows open in his bedroom. He is given credits on his score card for every chore he performs, and there are honors in titles and pins, which act as incentives.

Can we not imagine the vast value to the anti-tuberculosis worker in having the children of a community trained and educated in matters of health. Since tuberculosis in its incipiency is largely a disease of young life, the emphasis on healthy habits must certainly be placed there. The work is made easy and more pleasant than other lines of work by the very reason of the plasticity of the material with which we are working. You who have had difficulty in persuading, begging, bribing or teaching an adult patient the use of a sputum cup will appreciate the difference between that labor and the joyful work with the children. Again and again, teachers in the grade schools tell me of children who try to anticipate the time for marking their chore cards. They are so eager to check up in the morning the score for the day previous that they ask to have that put first in the day's schedule.

Meanwhile who shall say the children are not educating the elders in their homes? One mother came to me with an anxious look on her face and said, "Is it necessary for my boy to drink four glasses of water *every day?* He is trying so hard to keep the chore card, but I am afraid all that water will give him floating kidney." She seemed really relieved to know it probably wouldn't.

While the Crusader organization is invaluable, there are other educational measures needed among the children. Some of the Health Plays published by the National Association for the Study and Prevention of Tuberculosis are excellent and are not to be neglected in work with children. The teachers are glad to have these, since very little is required in the way of scenery and make-up. A list and description of these can be secured from the National Association office. If used in connection with the Crusaders, it serves to fasten the children's interest.

Some pertinent findings in our Framingham experience have taught us that continuous publicity, through the clubs and lodges, the newspapers, the churches and the factories, is the policy we must pursue. We should see to it that every club and organization have a member

appointed regularly to give our news at the meetings. We ought to get our matter to the "current events committee" in every club, so that it will have place and standing with other news of importance. Newspaper material should be regular and not spasmodic. Generally, the local newspaper will be glad to furnish a specified space weekly if not daily. The churches furnish valuable material by the very personnel of the membership. The co-operation secured from them on Tuberculosis Sunday shows where they stand in regard to helping on the big job of getting over to the public the message that tuberculosis is preventable and unnecessary.

In Framingham we are ready to issue a series of ten posters of large size, printed in attractive colors for distribution in the factories. These will be distributed in serial form and each one will carry some eye-arresting phrase. The worker in industry must not be neglected, and the educative force of seeing every time he enters or leaves the shop some line about his health may do more for him than talks or books could ever do.

The theatre is a potent force, although it cannot be used as often as other agencies, especially in tuberculosis work. When it can be secured, a slide run in occasionally at the moving pictures houses will pay for itself many times over.

In Framingham we have developed a very thorough organization of the community for educational work with the Demonstration by means of lay committees which cover the entire town. It has been our aim in this to keep the machinery as simple as possible, so we have divided the town into seven districts which include our rural population. Our plan has been to ask some one man or woman on each street to represent a street for the Demonstration in such matters as birth and sickness reporting and general educational work. It can be readily seen how in this manner we can get in touch with every section and street of the town and come to know the people as we could not in any other way. By knowing the committee members personally and intimately we feel assured of a sympathetic coöperation. Much time has been put into educating the committee member beforehand and in assuring ourselves that she or he really understands the purpose of the Demonstration, and the big part they play in it. The committees number from twenty-five to fifty, according to the population of that district, and there is one chairman who represents the entire district in the Advisory Council of the Demonstration. The membership is mainly composed of busy people, so there is no intention of having regular or frequent meetings. The big fact in connection with the plan is to know that here we have an interested, intelligently informed group of people who will assist the Demonstration at any time as the need for special work comes up.

The personnel of the committees is interesting, and much time has been spent in their selection. The appointing of an unpopular resident on a street would be met with disastrous results, and the aims of the work defeated. This is especially true in those sections populated by foreigners, such as Italians. Sometimes many calls will be made on a given street before the right person can be found, but this loss of time is probably justified in the end. Running through the file of these names under the first letter of the alphabet we find listed a most diversified membership: Here is a nurse, an engineer in a foundry, a Normal School senior, a retired business man, a busy mother, a young Jewish immigrant, a clerk, a street car motorman, etc.

As each district committee becomes familiar with its section's particular problems, they will interpret them to us. In the first district organized the committee felt that the need for cooking demonstrations was greater than anything else, so accordingly the Domestic Science Department of the Normal School located at Framingham, was called upon for assistance and have been doing group work in the selection and preparation of food. Another district feels the need for home nursing and first-aid courses, and they will be taken up by the physicians and nurses from the Demonstration staff. In another district the work will probably be infant welfare work, and so on, as the various sections express themselves and their needs to us.

In Framingham, since the Demonstration is more or less temporary and its accomplishments, therefore, somewhat limited, we feel that one of the most important results, and one where we will make our biggest impress on the town, will be through the use of this intensive method of organization. If we can leave behind, as one of the results of the Demonstration, a community thoroughly organized to fight tuberculosis and

intelligently alive to the necessity for keeping awake public consciousness, we will have given Framingham the very highest and best service. If we can have intelligent citizens to fight for the eradication of tuberculosis, we need have no fear for the future fight against the disease.

Relative Values in Anti-Tuberculosis Work.

By Professor C. M. Hilliard, Boston,
Associate Professor of Biology and Public Health, Simmons College.

The tuberculosis problem is one of the most complex and confusing of all public health problems, having many aspects which appeal in their relative importance with different emphasis to workers who may be specializing in their respective fields. It seems worth while, therefore, to attempt an analysis of the salient features of the campaign for the prevention of this scourge, and to try to attribute to each factor a certain weight which will indicate its relative importance. Such a method has been applied with great success to the general problem of public health work by Dr. Charles V. Chapin, George C. Whipple, Franz Schneider, and others, and it seems quite likely that a more intensive analysis of the problem of child hygiene, infant welfare, tuberculosis, and other health problems will throw light on what our course of procedure should be in the future. There is always a strong tendency for scientific progress to outstrip the practical application, and our whole knowledge of communicable disease, and the science of prevention, is so new and is growing so rapidly that we should frequently make an inventory to see where we stand. It is this idea which I have in mind when I attempt the difficult problem of contrasting the importance of different factors in the anti-tuberculosis campaign.

Tuberculosis has been the most important cause of death amongst civilized peoples as far back as we have reliable vital statistics. For this reason it has probably received more attention from the medical and sanitary professions than any other disease. Its prophylaxis may be compared with the different stages in the development of our knowledge of communicable diseases. The infectious nature of tuberculosis was established by Villemin in 1865, almost two decades before the discovery of the tubercle bacillus by Koch. Prior to that time the nature of the disease was shrouded in mystery, it being looked upon as an hereditary disease, or as due to peculiar and unavoidable conditions of surroundings. With the definite knowledge of its communicability and with the accompanying sanitary awakening in England, which rapidly spread to other civilized nations at this time, a new epoch in combating the disease arose. It became apparent that this disease, as others, was associated with filthy human surroundings, and the attack was made in a hit-or-miss fashion upon dirt and decomposing matter.

With the demonstration of its specific etiology (1882), a new era arose. The foci of infection were very apparently associated with human beings suffering from the disease, and the hope was raised that at last a means of eradicating the disease had been discovered by preventing the spread of the germ from these centers. But in the last decade of the 19th century emphasis was being more and more concentrated upon cure. The establishment of the first sanatorium at Saranac by Dr. Trudeau in 1885 blazed the way to this new era, and the results which were immediately forthcoming were of an exceedingly hopeful character. It was definitely demonstrated that under the treatment given at sanatoria improvement of the patient rapidly followed. Still another element was added about this time (1890) by the discovery of tuberculin, and for a time it seemed as though a specific curative treatment would solve the problem. At the opening of the present century, a new appreciation of the social aspects of the disease arose, which led to the inauguration of the personal contact of the anti-tuberculosis worker with the patient in his home. I refer to the inauguration of the public health nurse in 1904, although it is worth noting that in 1899 two medical students under the direction of Dr. Osler had done house-to-house work for the sake of educating the patient and family, and of putting the patient in contact with the proper organized social relief. (Gardner, "Public Health Nursing," p. 25.)

If we examine the death rate from tuberculosis over a long period of time and with large enough groups, the hopefulness of the measures that have been tried is not altogether inspiring. We find that tuberculosis has been on the decline as a cause of death for generations, and, as Pearson has pointed out, in England, at least, the rate of decline is less rapid

during the last thirty years than it was during the previous thirty years. The discovery of the tubercle bacillus, the inauguration of the sanatorium, and even the recognition of the social and economic nature of the disease have not brought about any general measures which result in a sharp decline at those periods. It may well be argued that none of the measures has been tried on a sufficiently extensive scale to be a true measure of the prophylactic value of any one of these methods, and that is doubtless true up to a certain point, for we find in those cities and states where intensive work has been done that the death rates show a much sharper decline than for average and large populations. We might well say the decline in tuberculosis would result in spite of all of our prophylactic measures, rather than as a result of them.

At the present time, we are confronted the world over with conditions which may well be expected to raise the prevalence and the death rate from this terrible scourge. In fact, Newsholme has pointed out that in England and Wales the death rate from pulmonary tuberculosis during 1915 and 1916 is 12% greater than in 1913. (*Lancet*, 1917, ii). Newsholme states that "The experience in this country appears to coincide with that of the continental countries engaged in the present war." We are all familiar with the appalling situation in France as indicated by Dr. Biggs' report. The same thing is already indicated in the death rates in New York City from this disease, where the rate had steadily declined from 1.81 in 1910 to 1.50 in 1916, but showed a marked increase in 1917. The first eleven months of 1916 showed 7685 deaths; for the same period 1917 there were 8092 deaths from pulmonary tuberculosis. Dr. Kerr, health officer of Newcastle-upon-Tyne, likewise indicates the trend of this disease and states "that considerable increase in the number of deaths among that section of a civil population which has been especially affected by the new conditions of life brought about by the war, namely, girls at ages between 15 and 20 years," is shown.

The total deaths from pulmonary tuberculosis are shown from the following table by Kerr:

	Estimated Population	Deaths
1913	271,295	326
1914	271,523	375
1915	278,107	380
1916	272,259	407
1917 (January to June)	?	246

It becomes doubly imperative, then, that we should expend our energies in the present emergency in the most fruitful manner.

The prophylactic measures used to combat tuberculosis may conveniently be classified under four general headings: the prevention of infection; the cure of the disease; the predisposing factors; and public health nursing. Before we try to weight these various factors, we may well go into a consideration of each in some detail.

INFECTION.

The overwhelming evidence at the present time is that the tubercle bacillus is an almost ubiquitous organism in the body of man. The well-known investigations by Naegeli showed that upon necropsy at least 99% of persons harbor this microbe in their bodies by the age of 30. More recent work by Reinhardt in Switzerland demonstrated 347 out of 360 consecutive autopsies, or 96%, to be tuberculous. The von Pirquet reaction confirms in general the results that are found after death. More significant, possibly, is the early age at which infection occurs. In New York, in 1320 autopsies of children under the age of 5, 13.5 showed more or less generalized tuberculosis. According to the cutaneous test, which is generally admitted to be fairly reliable in children, from 80 to 90% seem to have contracted the disease before the 14th year. Knopf (*New York Medical Journal*, 1917, cv, p. 1181) gives the following analysis for the age at which infection occurs:

	Lowest	Highest
Under 1 year	1%	9%
1 to 3 years	9%	50%
3 to 5 years	27%	75%
6 to 10 years	34%	75%
11 to 15 years	12%*	94%†

* Private patients. † Hospital patients.

Without giving further figures which might be abundantly quoted, it becomes apparent that the problem of absolutely preventing infection during life is a vast one, and since relatively so small a number of persons acquire the disease in its active form, it likewise leads to the conclusion that infection is perhaps not the solution of the problem. An organism which is so generally distributed and seeded in the human race as this is almost as difficult to eradicate as the colon bacillus, which appears in the intestines of the newly born babe usually a few hours after birth; or mouth streptococci,

which are likewise found in the mouth very early after birth.

The mode of infection in this disease is somewhat obscure. The tubercle bacilli which infect man seem to have two primary sources: the discharges from the lungs of the tuberculous, and animals suffering from the bovine type of bacillus. As to how the organism enters the body is subject to controversy. The older theory regarding aerogenic infection has been supplemented by the ingestion theory. Doubtless, infection may occur by the direct inhalation of fresh dry, and pulverized sputum found in dust, or in sputum particles ejected during coughing and spitting, but organisms taken in this manner into the nose and throat may quite likely, instead of going directly to the lung tissue, penetrate through the tonsils, and be conveyed to their final destination via the lymphatics, or they may even be swallowed, and enter through the intestinal tract to the mesentery glands, and may be transported from there to the lungs. It seems more easy, now that we know about the scarcity of pathogenic microbes in the air and their survival here, that tubercle bacilli more commonly are taken into the body with food or upon articles that are infected with sputum. Infection by the alimentary portal has been demonstrated to be a possibility, and it may enter without leaving any trace as a primary infection. The common location of the primary infection in the apex of the lungs suggests other than the respiratory passage. Referring to the organism which comes from animal origin,—notably cows' milk,—there is no question but what its common path of invasion is through the alimentary canal. This type of disease is most common in children, and is easily preventable by the routine practice of efficient pasteurization of all milk.

The prevention of infection, then, resolves itself, first of all, into the problem of preventing the contamination of surroundings with sputum and saliva. The anti-spitting ordinances are a beginning in this line of prevention, but vastly more important is the general education of people to the importance of other means of exchanging saliva. Masses of sputum expelled to the ground or floor, even in public places, are much less liable to return to persons in fresh form than as though this material were sprayed into the atmosphere in coughing and sneezing, or were smeared by fingers upon trolley straps, door knobs, counters, drinking cups, and eating utensils, or upon food, such as bakery products.

The danger from these latter sources is indicated by the recent study in New York City, where an intensive examination of food handlers revealed that out of 1748 persons "there were 10 cases of active tuberculosis, 12 of suspected and 3 arrested tuberculosis." The early diagnosis of cases to prevent active foci of the disease, the hospitalization of active cases, thorough disinfection of the discharges, proper instruction of both patient and attendants and exposed persons, and the exclusion of the tuberculous from employment in industries involving the handling of food, aid in preventing the spread of the disease. We emphasize these things in spite of the fact that we have indicated that to avoid infection during lifetime is rather hopeless, because we definitely understand that repeated infection and massive infection may at any time be a danger.

CURE.

That tuberculosis in its early stages is a disease that may be arrested, and perhaps permanently arrested, is a well-demonstrated fact. Cure, in the sense that the bacilli may be eradicated from the body, is conceded to be quite improbable. The secret to the cure of the disease is its early detection, and any measures that will encourage the early detection of the disease are not only in favor of the patient, but in favor of the public health. The encouragement of routine physical examination for school children, for adult employees, and for all persons is an anti-tuberculosis measure of first magnitude. We should discard the secrecy that surrounds this disease and should report it frankly to public health authorities, to the family, and to the patient himself, immediately the suspicion arises. To conceal the disease from the patient or from others is to deny the opportunity for cure and subsequently to endanger the public health.

With the discovery of tuberculosis in the patient, proper instruction and proper facilities for the treatment should at once be found. We are laying less and less emphasis upon the importance of climate, latitude, and altitude, and more and more upon rest, and cheerfulness, and successful nutrition of the patient. Out-of-door air is apparently quite as good for tuberculosis patients in New England as it is in

Colorado. The cure has a psychological element as well as physiological. The sanatorium, likewise, is not indispensable in the program for cure, although each case must be considered separately in this regard. Fishberg (1916) says: "It is shown that institutional treatment is not the only, nor the best method of caring for the majority of patients." If the case is not yet a menace to the family (with the exception of cases where the facilities cannot be devised for home treatment) they should be encouraged to remain at home. The sanatorium is for the very poor and the ignorant, primarily. Out-of-door schools, not only for recognized cases, but for all children with poor physique, should be rapidly extended. The tuberculin treatment would be included as a hopeful item by many, and with our increase in the knowledge of administering this agent it may become an important item.

PREDISPOSING FACTORS.

Vigorous physiologic defense is the secret in combating tuberculosis, and social and economic factors play the largest part in the maintenance of high resistance. Granting the presence of a benign and almost universal infection with tuberculosis, the occurrence of the disease in its active form, chiefly in the age period from twenty to forty, must be explained either on the basis of radical reinfection between these ages or to a flaring up of the latent lesion into an active form. The habits of life and industry at this time seem not to afford unique opportunities for further or more massive infection. At this period, however, the entrance into industry, the intense ambition to acquire position, power or money, and the increased exposure to temptation all lend to cumulative fatigue and lowered power of defense. "Chronic fatigue, whether from excessive toil or excessive amusement; disordered metabolism, whether from starvation or over-indulgence; anxiety, whether due to religious fervor, business emergencies or games of chance, all are predisposing factors."*

The general predisposing factors of a social and economic character are so numerous that it will be useless to attempt to consider them all separately. Broadly speaking, all factors that lead to fatigue and depletion contribute to tuberculosis. We shall discuss a few predisposing factors specifically. Inheritance, both racial and family, plays an important part. In relation to prophylaxis, however, but little can be done through heredity. In families where tuberculosis is known to be present in active form, restriction of the increase in the family might be discreetly urged through legislation and through education; and marriage between parties, one or the other being tuberculous, may be prevented.

Malnutrition, especially among children, is a most important item. We learn from a recent number of the New York City Weekly Bulletin that approximately one-eighth of all school children in the city are undernourished, or 125,000. We need only to look around us to see the perpetual demonstration of how common insufficient nutrition is in the human race, and to appreciate that a vast problem confronts us here which plays its rôle in tuberculosis. The present status of the food situation in America and throughout the world is rather discouraging from one standpoint, but from another, namely, that for the first time the public is being informed as to what constitutes an adequate diet, it is, perhaps, encouraging. At this time let us make sure that we feed our infants and our growing boys and girls well.

Alcoholism, other drug addictions, and all excesses tend towards tuberculosis.

Tuberculosis has been called an "occupational disease," and the more we learn of the relation of tuberculosis to industry the more we appreciate the truth of this. This is very hopeful because most of the industrial conditions that predispose to tuberculosis may be corrected. The trades which are most dangerous are: first, all of those which expose the worker to dust; secondly, those where bad air, excessive heat, and noxious gases occur; and, finally, the occupations where the poor posture and close confinement are common. Dr. Crumb, in analyzing the Prudential Life Insurance Company's experiences, finds that in dusty trades the death rate is from twenty to thirty per cent. higher than in non-dusty occupations for all workers. In an exhaustive study of the factors contributing to the incidence of tuberculosis in Cincinnati, Robinson and Wilson conclude that occupational hazard is one important contributory cause. The elimination of child labor, minimum wage scale, health insurance, and other sociological industrial elements are highly important.

There are certain diseases which directly pre-

* Smith: Jour. A. M. A., lxvi, pp. 77-82.

dispose to tuberculosis, which are themselves preventable. Typhoid fever is most significant in this respect. In a notable paper Dr. Woodruff has shown the parallel decline in typhoid and tuberculosis in many countries. The past histories of sanatorium inmates show that they have suffered from typhoid fever in excess of the general population. All acute or chronic diseases lower resistance and throw wide the portal to the tubercle bacillus. Pertussis, measles, and scarlet fever seem to render children particularly liable. General sanitation and disease prevention are, therefore, weapons against tuberculosis.

Housing conditions are usually included as predisposing causes. House infection in the sense that the house becomes infected and seeded with tuberculous bacilli, and that infection is contracted readily because of such conditions, probably is not important. It is, however, certainly true that tuberculosis increases in direct ratio to number of persons per room. Bad housing goes hand in hand with poverty, poor human protoplasm, ignorance, alcoholism; and tuberculosis is the result of a long sequence of conditions rather than the room or house.

Poverty itself is a predisposing cause. If we could eradicate poverty we should go a long way toward eradicating tuberculosis. We usually state hopelessly that the poor are always with us, and to combat poverty is to combat the foundations of society, and with its eradication would come the millennium. Much can be done in the way of eradicating poverty by education, the minimum wage scale, the social and health insurance, institutional aid, and brotherly love.

PUBLIC HEALTH NURSING AND EDUCATION.

We now come to the last of the four items which we are to discuss, and, historically, we find that it is the latest to develop. Public health nursing in relation to tuberculosis has the following objects: prevention of the spread of infection and detection of new cases; the instruction and nursing of patients at home, cooperation with agencies which may help the patient; assistance at clinics and dispensaries. We see at once that her work is very broad; that it is chiefly social and educational, ameliorating those factors which we have insisted upon before as being most important in the anti-tuberculosis work. Dr. McLaughlin has said that "dollar for dollar the public health nurse will give more for the money than any other single agent," and this is emphatically true in tuberculosis.

Education is the keynote to the nurse's work. It is by gradual, quiet instruction that she teaches the patient how to avoid infecting the environment, and the family how to protect itself. It is through instruction rather than nursing, which is really only in the form of a demonstration, that the patient is given the proper care at home. The finding of new cases is, of course, to give the patient the benefit of early treatment and the community the apportunity to rid itself of one dangerous focus of infection. The nurse seeks to place patients and families in contact with clinics, hospitals, and sanatoria when the need arises. She helps the discharged patient to rehabilitate himself, and is on guard for recurrence of the disease. Her work in relation to the health supervision of school children is recognized as indispensable. In combating tuberculosis in rural communities, the nurse is the strategic element; in fact, the only agency which has appeared. Her services are too little appreciated and too few facilities, as adequate facilities for travel, are given her to perform efficiently her tasks. The work of the medical social service worker, the industrial nurse and the infant welfare nurse verges upon, and, in fact, is a part of the anti-tuberculosis program. We cannot lay too much emphasis upon the hopeful character of the nurse's work in the campaign for reducing the scourge.

We now approach the difficult task of assigning the relative numerical values to the different factors which we have discussed. In its entirety the tuberculosis work is rated at 14% of the total by Chapin, as 12.1% by Schneider. In the effort to get an accurate measure of the influence of any one, or any group of these factors, we have been unable to work out a mathematical system. The figures simply represent an arbitrary weight. The items obviously overlap, sometimes one measure being worthless without another, as in the detection of new cases, reporting and subsequent treatment. From the preventive viewpoint, to recognize the case early is more important than the sort of treatment rendered. The weight of a given factor or agency has been considered from its response to corrective measures as well as the number of cases of the disease involved. Thus,

racial inheritance may play a large part; poverty is the very background for tuberculosis, and yet neither responds easily to applied prophylactic measures. Dusty trades, though not involving any large proportion of all cases of tuberculosis, are largely preventable. The nurse's work is a corollary of most of the other items listed, and her influence would be nullified in the absence of the clinic, the "preventorium," and other agencies.

The educational work of the public health nurse ranks first in prophylaxis. Unlimited protection from infection in early life, arbitrarily, up to the age of four years, and the control of the elements of malnutrition and fatigue each rank high in our estimate, these four items totaling nearly one-half the total score. It is our feeling that if those elements that are weighted high are emphasized the lesser factors will automatically fall in line.

RELATIVE VALUES IN ANTI-TUBERCULOSIS WORK.

Avoidance of infection	20
Unlimited protection up to 4 years	10
Hospitalization of open cases	4
Promiscuous spread of infection	3
Anti-spitting	.5
Anti-sputum (education)	2.5
Bovine tuberculosis	3
Meat inspection	.1
Health cattle and clean milk	.1
Pasteurization	2.8
Detection and cure of tuberculosis	16
Early detection	7
Prompt reporting	3
To authorities	1.5
To patient and family	1.5
Modern treatment (home or sanatorium)	4
Open-air schools	1.9
Tuberculin	.1
Elimination of predisposing causes	39
Avoidance of fatigue	10
Adequate nutrition	10
Alcoholism	.5
Occupation	5
Dusty	3
Other atmospheric conditions	1
Posture	1
Preventing other diseases	5
Good housing conditions	1
Ameliorating poverty	7
Inheritance	.5
Public health nursing	25
Educational work	15
Assistance in detecting and reporting cases	3
As a social agent	2
Infant welfare	2
School nursing	2
Industrial nursing	1

ANNUAL REPORT OF THE MASSACHUSETTS ANTI-TUBERCULOSIS LEAGUE, 1918.

BY ETHEL M. SPOFFORD, BOSTON,

Acting Secretary.

IN the absence of our Executive Secretary, Mr. Seymour H. Stone, who has been granted an indefinite leave of absence for the duration of the war and is now associated with the War and Navy Department Commissions on Training Camp Activities in Community Organization, I am going to give you a summary of the year's work.

EDUCATIONAL AND PUBLICITY.

During the last year almost 27,000 pieces of literature were distributed. This large amount is due to a new leaflet, "Facts for Fighters," which was prepared especially for enlisted men and sent to the Massachusetts cantonments and exemption boards wherever there was a chance for distribution. A set of six educational articles on tuberculosis, to be used for copy in schools of stenography, were purchased by the League and are gladly furnished to any schools who would care to use them. Over 6000 Press Bulletins from the National Tuberculosis Association, mostly dealing with tuberculosis, were sent to city and state newspapers. A booklet on sleeping and sitting out was sent to medical men and others interested in tuberculosis. The balance of the literature distributed included circulars and pamphlets of an educational nature, programs and reports of the annual meeting. Along the lines of educational work, it might be added that our President was very successful in arranging a series of lectures given by men well known in the medical profession to the military doctors at Camp Devens. These were very well received. The question of lecturing to enlisted men came up, but the League was of the opinion that it would be a mistake for civilian doctors to endeavor to address the enlisted men. During February and March this year the League was glad to coöperate with the National Association in its membership drive to obtain 5000 new members.

LEGISLATION.

There were few general bills of importance before the Legislature of 1917 of immediate bearing on tuberculosis, and the same is true of the Legislature of 1918.

Probably the most important measure affect-

ing tuberculosis was one passed by the 1917 Legislature, allowing the State Board of Charity to pay ten and one-half dollars for state cases needing hospital care. Indirectly, this has been of great benefit in the tuberculosis campaign because many of the towns or cities refused to care for the state cases in the local hospitals, rather insisting that they should either go to the sanatoria or the State Infirmary at Tewksbury, because the former payment by the State of seven dollars was in no way sufficient to recompense the cities for the care of these state charges, the result being that many of the patients have refused to go to Tewksbury and have, consequently, remained in their homes, a menace to members of their families. This distinction of state patients, and the necessity of gaining a settlement in the towns in which they reside, should be done away with, and anybody who has been in a town long enough to acquire the privilege of citizenship should become a charge upon that community.

The so-called Incorrigible Consumptive bill before the last Legislature was defeated. It has been re-presented and will probably be reported upon favorably to the present Legislature by the Committee on Public Health, and it is hoped that everyone here will impress upon their representative and senator that this is a bill worthy of support.

The Legislature also passed a bill extending the subsidy for tuberculous patients not having bacilli in their sputum, providing that after a survey of the city that it is demonstrated to the Department of Health and Trustees of Hospitals for Consumptives that the city was providing adequate care for its open, advanced cases of tuberculosis. Under this bill the city of New Bedford has, after a survey, been granted permission to care for non-bacillary cases above the number of seventy-five. That is, the survey disclosed that in all probability seventy-five cases of advanced tuberculosis was the quota which should be expected from the city of New Bedford, and the twenty-five to thirty beds above this number can be filled by approved, non-bacillary cases, and the subsidy granted. Thus, by this survey, New Bedford has been put into the front ranks of municipalities caring for its tuberculous patients.

Another bill of importance has been passed by the present Legislature, which provides that all prisoners sentenced to more than thirty days' confinement must have at once a complete physical examination. This must ensure, I think, the discovery of a large number of cases of tuberculosis and the consequent transposition of these cases to the tuberculosis camp connected with the West Rutland Prison Camp, thus doing away with deaths of people from tuberculosis in the jails throughout the Commonwealth. This bill is also of importance to all those interested in the suppression of social diseases.

A bill was introduced into the Legislature, providing for the abolition of the Trustees of Hospitals for Consumptives, and the transfer of the administration of the hospitals to the Department of Health. As the Department of Health is an executive and scientific department, the bill was opposed by the Trustees and the Commissioner of Health, and at the present time has been reported adversely upon by the committee to which it was referred.

An amendment to the County Hospital bill has been introduced, by which the erection of county hospitals, securing of sites, etc., may be postponed until one year after signing the treaty of peace. This amendment has been prepared by the smaller towns in Worcester County, who have argued for it because of the expense of building at the present time. This amendment having been admitted by the Rules Committee, is under consideration by the Public Institutions' Committee at the present time. It should be opposed. Several of the county hospitals have secured sites and prepared plans which have been approved by the State Department of Health, and have, in some instances, started construction. The Barnstable County Hospital has been completed and will be opened publicly in June. The city of Lowell has also very nearly completed the construction of its long-delayed institution.

The Legislature has granted the State Department of Health an appropriation whereby eight nurses are to be employed as assistants to the District Health Officers. These nurses will oversee the after-care work in their various districts, and, to unify and centralize their procedure, Miss Bernice M. Billings, who has been After-Care Worker for the Trustees of Hospitals for Consumptives, has been transferred to the State Department of Health and will be Director of this portion of the duties of the new nurses.

LECTURES.

During the year 29 lectures on tuberculosis

and industrial nursing have been given, 7 of these having been given by the Secretary; 6 under the auspices of the Rural Tuberculosis Committee, and 16 by the Secretary of the Committee on Health in Industry. Seven of these talks were illustrated and the total attendance at these lectures was about 2400 people.

SLIDES AND FILMS.

"The Great Truth," a film dealing with the tuberculosis problem, was loaned by the Boston Association to the League. It was used in 5 Cambridge motion picture houses, which showed it at 2 afternoon and 2 evening performances. The League is glad to be able to have the use of this film, and to send it out whenever it finds the chance to place this vital subject before the eyes of the public.

EXHIBITS.

Over 18,000 people in this State have viewed the Health in Industry and Tuberculosis exhibit at various health weeks, fairs, and other public exhibitions. The Health in Industry exhibit is one of special interest to those who wish to further the work of getting the manufacturer and employer in mercantile establishments to conserve the health of their employees. The Open Air School exhibition belongs to the Association and has also been loaned to the League for exhibition purposes.

RURAL TUBERCULOSIS.

The lecture prepared by this Committee on Tuberculosis in Cattle as an Economic and Public Health problem was arranged so that it could be used with 20 slides or read without the illustrations. This year the lecture was given on 6 occasions, at 4 of which the illustrations were used. The Chairman of this Committee, Professor Curtis M. Hilliard, has also given it with illustrations before classes at Simmons College. A letter was sent to about 200 state granges, offering the use of the lecture and slides without expense to the grange, stating that a member of the Grange could read the lecture or that we would be glad to furnish a speaker for them. Responses this year were not as many as formerly. Prior to the annual meeting of the State Grange the existence of this Committee was made known to them and it was stated that the Committee was prepared to help in any problem that might arise on this subject. For the future work an article on Bovine Tuberculosis is to be prepared and sent to the state papers. The League is also planning for the future to promote the work of transporting nurses in rural districts.

HEALTH IN INDUSTRY.

Although no committee has been formed, it was voted at one of the executive committee meetings of the League to extend the work of the Boston Association Committee on Health in Industry throughout the State. The League voted to pay a portion of the salary of the Secretary and her expenses in League territory. This work has steadily increased and Mrs. Staebler, the Secretary, has had many calls to address District and Visiting Nurse Associations, groups of employers and boards of trade on the subject. Whenever a call has been made the League has been glad to have her respond because it means that each employer who is interested will undoubtedly see the wisdom of employing a nurse on part- or full-time service in order to conserve the health of his employees.

RED CROSS SEALS.

Inasmuch as the League cannot solicit contributions in communities where anti-tuberculosis associations are located, it is financed largely by receipts from the sale of Red Cross Christmas Seals. We are pleased this year to report an increase of $551.04 in the net receipts from the sale of these seals, the total number of seals sold amounting to 3,588,452, which were valued at $35,884.52. This makes an increase of 772,211 seals over last year's sales. The expenses of conducting the state campaign were $1,355.47, and those of the League $346.16, the amount sent to the American National Red Cross as its share being $3,379.60. This leaves for use in the subordinate organizations for tuberculosis work $28,003.20, and after the League's expenses are all paid, $2800.09 for its work. The various anti-tuberculosis associations reported that the Red Cross Chapters, Boy Scouts, public and Sunday schools had greatly aided them and to all these the League wishes to extend its thanks in making this sale a success.

MISCELLANEOUS.

The school committee of every city and town is required by law to appoint one or more school physicians who should examine every child reported to them and make a diagnosis in the case. If a child should show symptoms of tubercu-

losis, the parents and Board of Health should be notified of the disease and the child sent home from school. There is a general belief that tuberculosis in most instances begins in childhood and we hope that the school committee will be vigorous in its follow-up work on physical examinations. It might be well for the various anti-tuberculosis associations to be more watchful in their localities in regard to school instruction upon the prevention of tuberculosis.

War Prohibition was endorsed by this League at one of its executive committee meetings, as well as the war program of the National Tuberculosis Association.

In 1917 there were approximately 5375 deaths from tuberculosis. Of these, 4600 were from pulmonary tuberculosis and 775 in other forms.

There are over 3300 public and private beds for tuberculous patients in the State, and of these, about 1065 are those of the state sanatoria. The new county hospitals, when completed, will greatly add to the number of beds and will take care of many patients who are now a menace to the members of their families while staying in their homes awaiting admission to the various state sanatoria.

Follow-up Work in Tuberculosis in the Small Towns and Villages in Massachusetts.

By Bernice M. Billings, Boston.

With the exception of the after-care of the ex-sanatoria patients, which was started in 1912, there was no serious follow-up work of tuberculous patients in the small towns and villages in Massachusetts until the latter part of 1915. In the three-year period previous to 1915, the Visiting Nurse Associations and the visiting nurses had expressed willingness to assist local physicians in following up the patients discharged from the state sanatoria. In this way very good relationship had been established between the Trustees of Hospitals for Consumptives and the visiting nurse in each community, making the next step in follow-up work comparatively easy.

After the opening of the 54 dispensaries in 1915, the after-care work in these cities and towns of 10,000 and more inhabitants, was turned over to the dispensary nurses. This allowed more time to be devoted to the rural sections of the State. In the latter part of 1915, a conference was held between Dr. Eugene R. Kelley, Director of the Division of Communicable Diseases of the State Department of Health, and the State District Health Officers, with Dr. Arthur K. Stone, Chairman of the Trustees of Hospitals for Consumptives, and the superintendents of the four state sanatoria, and at that time it was arranged that not only the ex-patients from the state sanatoria, but also all patients who had been reported to the State Department of Health in these small towns, should be visited, and a brief history of each patient should be sent to the State Department of Health. This marked an event in developing a definite nursing responsibility toward all tuberculosis patients in remote parts of the State. To assist in working out this general scheme of follow-up work the State Department of Health provided a list of all patients reported with tuberculosis from each small town to which the visitor was going to look up the ex-sanatoria patients. These reported cases covered a period of eight years.

Before visiting the home of tuberculous patients, an interview was obtained with the Board of Health Agent in each town. In the official record books was entered the date of the patient's report to the local Board of Health and the name of the physician who reported each case. These data were transferred to the history card of the State Department of Health. In each instance the physician who had reported the patient was seen in order to ask his advice and to gain permission to visit his patient. It was found that many of these patients had died, and that a large percentage of those who were living were under no regular medical supervision when visited. A history was taken of each patient, instruction in hygiene was given, suggestions were made that the children in the family, who had been exposed to tuberculosis, be examined and the patient when living was urged to return to his physician for examination and advice. If there was a regular visiting nurse in the community the patient was referred to her for home visiting. When patients were found to be living under undesirable conditions a detailed report was given to the private physician, the local Board of Health, the visiting nurse, and the state district health officer. After fourteen months of this work 903 histories were sent to the State Department of Health. It was then found that practically all of my time had been consumed in doing this

general follow-up work, there being so few ex-sanatoria patients in these communities. As my work was primarily for the after-care of the state sanatoria patients it was finally decided that my work should be confined to the visiting of the discharged sanatorium patients.

According to the last State Census there are in Massachusetts some 295 towns of less than 10,000 inhabitants. There are 52 towns with a population of from 5000 to 10,000 people. Forty of these 52 towns have the services of a visiting nurse, and in addition 5 of these towns are employing a full-time school nurse. In the smaller communities there are 80 towns with a population of from 2000 to 5000. Twenty-eight of these 80 towns have a visiting nurse, but there are no full-time school nurses. There are 163 towns of less than 2000 population. Five of these towns employ the services of a public health nurse. The financing of this visiting nursing work usually has been made possible by contributions from public-spirited citizens who have given their time and money to this good work. Ordinarily the visiting nursing work is under an association made up of women. Many of the towns appropriate money which is given to the nursing association to further their work, and this has greatly helped the organizations. At the present time in 4 towns in the State the nursing work is entirely supported by public appropriation.

It has been my good fortune to visit the greater number of these small towns, and get a good knowledge of the follow-up work as it is being done in Massachusetts today. I am encouraged by the interest and good will of both public and private agencies, and the helpfulness of private physicians throughout the State. A great drawback to good follow-up work is that we are expecting altogether too much from one nurse. In each of the 40 towns where a visiting nurse is employed, this nurse is trying to do bedside nursing, prenatal and postnatal work, occasionally a certain amount of school work, and attempting to do the follow-up work of the tuberculous patients. The bedside care of the sick must be attended to and in busy times it means that the nurse works from eight to twelve hours a day. In any case it is an injustice to expect a nurse to do instructive work in a day which is already too full. One of the great dangers is spreading nursing work too thin, and when this is done it is always the educational work which suffers most.

I have been told repeatedly in towns where one nurse is being overworked, that in regard to the consumptive patients it is impossible to get them to go to sanatoria or hospitals. This usually proves that the tuberculous patients are not well supervised. If the nurse is a regular visitor the patient and family gradually get to place a great deal of confidence in her judgment. Then when the physician and nurse advise hospital treatment it is not difficult to persuade the patient to make this necessary change. It is also most unfortunate that the physician or town authorities do not send the nurse to many consumptive patients until they are very ill and need actual bedside care. This is due to several things: 1st, lack of coördinating forces of Board of Health, private physician and visiting nurse associations; 2nd, the physician does not realize that a nurse can help him in teaching the patient and family how to follow out his advice and treatment; 3rd,—and quite as important,—the physician knows how much the nurse has to do and that she is already overworked, and for this reason he will not ask her to take on anything extra in the way of educational work.

In our small towns of between 2000 and 5000 inhabitants the nurse is not so badly overworked, and yet in a town of 5000 persons there is certainly plenty of work to keep two nurses constantly employed. In the 5 small villages of less than 2000 persons, where a public health nurse is employed, there is a splendid opportunity to develop the work along the best lines. Many times I am told by men and women living in towns of from 2000 to 3000 inhabitants that there is no need of a public health nurse as there would be nothing for her to do. If a nurse was engaged for one of these towns, and if at the end of six months her days were not full, it would be the fault of the nurse in developing the work, and not because there was no need for her work in the community. With the great distances it would mean that with a few bedside calls, prenatal work, the following up of the babies, visiting the consumptive patients, and possibly an hour in the mill or factory in the town,—and in Massachusetts there is a small factory in nearly every town,—the nurse could not fail to keep busy. Physicians in these towns often tell me how much they desire the help of a trained worker to give intelligent assistance when it is badly needed. In these small communities we do not need a visiting

nurse, a prenatal nurse, and a tuberculosis nurse, but we do need well-trained women who will do whatever public health nursing is needed in the particular towns in which they are employed. If in this community the nurse can prove to the physician that she is of real value to him in a time when he needs her, I do believe he will be far more ready to approve of her visiting his consumptive patients and helping them to follow out his advice.

In regard to school nursing, I should like to say that this past winter in one of the small villages of less than 400 persons where I was visiting a consumptive patient I had an opportunity of talking with a woman intimately associated with the public schools. She told me of a child who had eye trouble. The school physician advised that this child go to an oculist, and a note to this effect was sent to the mother. Then came the summer vacation, and in the fall this child returned to school with the eyes in bad condition. It was then learned that she had not been seen by a physician since the closing of school. The superintendent of schools went to the mother, and explained that the child must go to the oculist, and finally the mother consented. After the physician had examined this child's eyes he told the mother that there was no sight in one eye, but he would do what he could to save the other eye. Had there been a public health nurse in this community to follow with a home visit the note which was sent to the home of this child, this unfortunate case of neglect would probably never have occurred.

At the present time there are approximately fifteen of these larger communities which have placed an automobile at the services of the nurse so that she may visit patients in the more remote parts of the town. It is a short-sighted policy which allows the visiting nurse to visit only those patients who are living near the car-line.

Berkshire County has a public health nurse who is doing special school work. This should be a great help in stimulating communities to greater activity along the lines of public health nursing.

The Child Conservation Committee employs eight nurses, one in each district of the State. These nurses are planning to visit the small towns and villages in the State, particularly in reference to saving the lives of children.

The State Department of Health is planning to employ eight public health nurses, one under each district health officer. These nurses will devote a part of their time to tuberculosis follow-up work, particularly in the small towns and villages. This, too, should be a great help in proving to the towns the need for public health nurses.

In closing this paper, may I repeat that although we have 73 small towns employing a public health nurse, yet if we wish to have worth-while follow-up work done by these nurses we must give them more assistance. This assistance should be a conveyance, and additional nurses as often as it can be demonstrated in the community that they can be used to advantage. In our country districts, in towns of from 300 to 500 persons, we could use one general nurse to take care of two or three towns. It is said that this nursing work cannot be done in the winter time, but it is only occasionally, and for short periods of time, that the roads are actually impassable. During this past winter I have been through Berkshire, Franklin, Hampden, and Hampshire Counties, traveling from the last of December to the first of March, with poor train service, and making use of horses and sleighs as never before, yet I have been able to reach all the villages in which there were ex-sanatoria patients. These villages were oftentimes miles from the railroad station. Farmers are travelling over the roads constantly, and where the towns-people can go it is perfectly practical for the visiting nurse to make her way, providing she is given transportation.

It might well be a part of the program of the Anti-Tuberculosis League to aid in stimulating public opinion so that we shall cover the most remote sections of the State with public health nurses. It is only in this way that we shall be provided with facilities for doing follow-up work in the homes of tuberculous patients.

WAR AND TUBERCULOSIS.

BY CHARLES J. HATFIELD, M.D., PHILADELPHIA,
Executive Secretary of the National Tuberculosis Association.

THE very kind remarks made by Dr. Bowditch about the National Association and its Executive Secretaries can be promptly returned, because we all know that the National Association has had very distinguished Presi-

dents, and one of the best of them was Dr. Bowditch.

Miss Beard has referred to the fact that the tuberculosis campaign or public health work generally has received a very great stimulus from the war. It seems that we may well start our discussion of War and Tuberculosis with a recognition of the truth that the war has brought to us a greatly increased opportunity and a greatly increased responsibility. The reason is very plain, since war and disease are always closely associated,—disease following in the wake of war. Through all of the great wars of history the development and spread of disease, even to the extent of epidemics, will be noted. The causes are very simple,—the transfer of large bodies of men from regular methods of life to irregular living in strange and perhaps inclement climates; over-exposure and over-exertion; insanitary housing; irregular and impure food supplies,—all these factors lead to the devolopment of disease. Enteric disturbances perhaps take place at the head of the list. Our shocking experience with typhoid fever in the Spanish-American War is an instance. We find also, in our history of armies, cholera, dysentery, smallpox or typhus fever.

The association of war and disease is serious so far as men are concerned who are actually engaged in military operations. Although perhaps not so evident, the association is even more serious when we consider the health of the civilian population of a country at war. Here also the reasons are obvious,—since in a civilian population there may be extreme distress on account of the destruction of homes in invaded territory, the driving back of great masses of population as refugees, over-exposure and over-fatigue, overcrowding and insufficient feeding. Moreover, even in homes outside of territory directly subject to war conditions, there is distress because of the loss of ordinary means of support and greatly increased hardships in securing the necessities of life. In general, there is a sharp revision downward of the scale of living where such change may mean a cutting off of the necessities of healthful living.

To trace the spread of tuberculosis in consequence of a great war is not so easy as the following up of the more acute and sometimes epidemic diseases. We may not be able to prove that there is an actual and demonstrable spread of tuberculosis, but we have weighty evidence of the increased development and activation of existing tuberculosis. Possibly the tuberculosis has been present before, but it has not been in an active condition, and, therefore, has not been a public health problem until it has been developed or discovered by war conditions.

In the first year of the great war we were greatly disturbed by reports brought to us as to the increase of tuberculosis in France. The record was so startling that the International Health Commission of the Rockefeller Foundation determined to examine into conditions, and commissioned Dr. Hermann M. Biggs of New York to go to France to make a careful survey and to report recommendations as to what helpful assistance might be given. After a very careful survey of the records of the French and also an examination into conditions among the English troops and the Canadians quartered in England, Dr. Biggs reported that the spread of tuberculosis had been astounding; that the development of the disease in all classes of population had been very great and that the nation was in urgent need of help. Dr. Biggs did a very great service to France by recommending a course of action to be taken by the Rockefeller Commission, which consisted in securing a competent Commission to go to France and to institute measures for the control of the disease. Dr. Farrand, the President of the University of Colorado, who had previously been the most efficient executive of the National Association, was secured to head the Commission. As heads of important departments, Dr. James Alexander Miller of New York accepted the direction of the medical aspect and Prof. S. M. Gunn, of the Massachusetts Institute of Technology, accepted the direction of the educational side of the work. The Commission arrived in France in July, 1917, and in less than one year has developed a splendid plan of organization. Its work is closely coördinated with that of the French authorities and also with the Department of Civil Affairs of the American Red Cross in France. When we know that Dr. William Charles White of Pittsburgh is at the head of the tuberculosis work of the American Red Cross, and Mr. Homer Folks of New York is the Director of the Department of Civil Affairs, we can understand how close has been the coöperation between the Rockefeller Commission and the Red Cross authorities. The report of the French authorities, as brought to this country by Dr.

Biggs, has been considerably modified through later investigations. Although the amount of tuberculosis is astounding, its distribution differs from that shown in the earlier records. One point of especial difference has been demonstrated, namely—that army life, even at the front, does not lead to a great increase in the incidence of tuberculosis. On the other hand, there is an impression that the physical condition promoted by army discipline tends to increase the resistance of the soldiers even though they are exposed to trench life. To offset this rather favorable report, it has been established that the incidence of tuberculosis among the industrial classes is very high. Upon the charts shown by Dr. Miller the areas of the deepest black were always points where an industrial population was most thickly settled,—where people had long and hard hours of work and were crowded into insanitary quarters. When America entered the world war, the alarming reports from France tended to direct the attention of the American authorities promptly to the subject of tuberculosis. From the very first the Surgeon-General's office, as the medical agency in charge of the greatest number of men, took vigorous action to prevent the disease in the Army. The National Association also took an active part in cooperating in the plans to free our troops from the menace of tuberculosis and so far as possible to prevent a spread of the disease among the civilian population affected by the war. The action taken by the Surgeon-General of the Army has, of course, been paralleled by similar action by the medical authorities in charge of the other branches of the service. It may be well to take a few minutes to discuss briefly the measures taken by the medical service to prevent tuberculosis in the Army.

One of the first steps was the appointment by Surgeon-General Gorgas of Colonel George E. Bushnell,—who has been for years at the head of the Fort Bayard Sanatorium in New Mexico and is recognized as a distinguished authority on tuberculosis,—as the officer in direction of all measures taken to prevent the disease. In the plans, as they are so far developed, there are four distinct points to be considered.

First, the exclusion of cases of active tuberculosis from the Army; second, the care and education of the men in active service in order to prevent the disease; third, the care of soldiers invalided home on account of tuberculosis and, indirectly, their economic reconstruction, if such a thing is possible; fourth, the consideration of general public health through making known to the health authorities throughout the country the cases of tuberculosis discovered in the draft or developed in the service. Plans to meet each one of the above conditions have been carefully made and are being continuously developed. Intensive study is being given to each phase of the problem. I personally believe that through the careful execution of the plans, active cases of tuberculosis will be excluded from our Army, and we can, therefore, feel a fair degree of certainty that our forces will be remarkably free from cases that are likely to spread the disease.

So far as the exclusion of cases of active tuberculosis from the Army is concerned, examinations before Exemption Boards have been, in general, incomplete and inadequate. The medical examination was casual and hurried. The instructions sent out from the office of the Provost-Marshal General did not place any importance whatever on the examination of the chest, and, therefore, on the discovery of tuberculosis. As a result, the Exemption Boards accepted a great many cases of tuberculosis. When, however, men were admitted to the camps or cantonments, the representatives of the Surgeon-General's office took vigorous action. There was a preliminary examination by the medical staffs; later a thorough chest examination by the Tuberculosis Commissions. The Commissions were appointed with considerable care and consisted of experts in the examination for tuberculosis, recruited, so far as possible, in the neighborhood of the cantonment. For more than six months the Tuberculosis Commissions have been combing over the men who were sent to camp and rejecting those in whom there was an active tuberculosis. The special Commission plan, however, has been somewhat expensive and will be somewhat changed by a recent ruling of the Surgeon-General. Apparently he has decided that the primary examination is to be made much more complete and more satisfactory, and the medical staff of each camp is to be increased by the addition of many of the specialists formerly included in the Tuberculosis Commission. The men who pass the preliminary examination, which will be given, presumably, within a short period after their arrival at camp, will be considered "in line of duty" and fully enlisted. In this

way all cases that later develop tuberculosis will be taken care of in the Army. The new ruling is of great importance to those of us who have been attempting to care for the men who have been kept in camps and cantonments for periods up to three months, and when found to be tuberculous, have been discharged without military standing. The injustice of such a proceeding has been finally recognized, and it is believed that the new system will correct it.

When a man has been accepted for service, his protection from infection and his education in personal hygiene will be attended to. In cooperation with extra-military agencies, such as the National Tuberculosis Association, by bringing into play the Y. M. C. A. facilities, a definite campaign of education in the prevention of disease, especially of tuberculosis, has been arranged. The instruction will be made, so far as possible, entertaining, as we are told there is already too much didactic lecturing, and the men, tired out with drill, are not in condition to listen to dry teaching. Health instruction is to be made attractive by the use of moving pictures, lantern slides, etc., made in military surroundings, a specially designed lecture for a military audience, and an instructive poster exhibit. The posters are simple, bold and impressive, and we think will attract attention and convey the lesson. They appeal to patriotic motives rather than to fear of infection. Soldiers are stimulated to keep themselves fit.

For the enlisted man who is invalided on account of tuberculosis most interesting and somewhat complex plans are being developed. The system will include not only care and medical treatment, but on attempt, wherever possible, to restore the men to an economic independence, and, to this end, to provide certain means of vocational education.

At present the plan is to treat tuberculous soldiers in large military sanatoria. The announcement has been made that camps will be located in New Haven, at Otisville, at Asheville, at Denver, and in New Mexico. Attention has been called to the fact that men will often refuse to go to a military camp and will demand their discharge from the Army. In Canada and England, it has been found very difficult to retain in military service men who were ill with tuberculosis. Of the first contingent sent back to this country from abroad, a large majority of the cases of tuberculosis have already secured their discharge from the Army. To meet this situation the Surgeon-General has recently ruled that no one will be discharged until his recovery is complete or is as complete as possible. A man who is discharged on account of disability comes at once under the rules of the Bureau of War Risk Insurance in order that he may be paid compensation. If not discharged, he remains in the regular service and gets his salary, and does not get compensation. If an agreement with the War Risk Bureau can be reached to the effect that no compensation will be paid by the Bureau to a man who is not discharged by the medical authorities, the Surgeon-General may be able to retain the men under treatment so long as is proper.

The question of reconstruction and re-education is closely associated with the point that we have just discussed. The agencies interested in this phase of the care of tuberculous soldiers are: the Surgeon-General's office, the Federal Board of Vocational Education, the War Risk Bureau and, incidentally, the American Red Cross. Preliminary studies of courses of instruction have been made and the experience in England, Canada and France has been studied. Colonel Frank Billings of Chicago, has been put at the head of the Bureau of Reconstruction and Military Hospitals in the Surgeon-General's office. Under his direction the plans for reconstruction and re-education are being developed. The general outline is to have a large convalescent camp in each one of the sixteen military districts of the country. Apparently, each camp will consist of the hospital, one section of which will be assigned to tuberculosis, another to nervous diseases, another to maimed soldiers, etc. As the center of the group, where the hub about which the whole system should revolve, will be the school of preparatory vocational education or industrial rehabilitation. Twelve of the sixteen hospitals have been designated by the Surgeon-General, certain of the large military hospitals being set aside for this purpose. The stages of education are of interest. In the first stage, bedside occupations are provided; these are designed to occupy the patients' minds and to make them feel that they can make use of whatever strength or ability is left to them. The effect of bedside occupations is, therefore, chiefly psychological. The next stage is occu-

pation therapy or a curative workshop. Here patients will get more direct connection with industrial life. Although emphasis will be laid on the therapeutic value of the work, the instruction should be preparatory to the final step in the return of disabled men to economic life. The third and final stage should be the school for industrial or vocational education, to which patients may be graduated when therapeutic treatment is no longer considered necessary. The final stage will probably be in charge of the Federal Board for Vocational Education.

In the development of this system, the experience of all countries will be helpful. At the beginning probably it will be necessary to borrow teachers. Later on the staff may be recruited from disabled men who have fitted themselves to teach. The Red Cross has already started an Institute for Crippled and Disabled Men and is making preliminary studies as to the field to be covered.

Another aspect of the work of reconstruction is of interest. We must expect that many of the men who have come back disabled and in need of rehabilitation, will refuse re-education. They are allowed compensation sufficient to keep themselves and their families. They feel that they have given all and now deserve freedom from discipline. In other countries the experience has been that only fifteen per cent. of the men who need industrial re-education are actually getting it. An attempt to meet this difficulty has been made by coöperation with the War Risk Insurance Bureau. The principle is proposed that a man, when discharged on account of disability, shall receive such compensation no matter how much additional money he earns through industry. On the other hand, it is proposed that the Bureau of War Risk Insurance insist that disabled men submit themselves to re-education in order to prevent the deterioration in manner of living. The compulsion toward re-education can be brought about by cutting off a part, at least, of the compensation, provided a man refuses to make use of whatever ability is left to him. It is yet doubtful just how this principle can be developed into an acceptable procedure.

As to the plans adopted by the Surgeon-General's office that relate to general public health, and the control of tuberculosis, interesting developments may be noted. There was prompt recognition of the fact that examinations for military service are certain to bring us valuable knowledge concerning the extent of tuberculosis and increased responsibility for the care of cases that are newly discovered. The result of the examinations so far seems to be that our former estimates as to the number of discoverable cases of tuberculosis in the country must be doubled—that is to say, instead of estimating from five to ten living cases of tuberculosis for every death of the disease, we must estimate from fifteen to twenty cases for every death. Additional knowledge on any subject always leads to the development of equipment to meet the new situation. Therefore, although we may at first be disheartened at the thought that facilities are not at hand to take care of the increased number of cases, yet the field has been proven larger than we thought and a new weapon with which to educate the public in the prevention of tuberculosis and the provision of equipment for its proper care has been given us.

When we come to consider what the State of Massachusetts can do to meet its responsibility for tuberculosis discovered in connection with the war, we must realize that the pre-war equipment, however highly organized, is not adequate for the new responsibility. A few fundamental principles should be observed. First, we must look to it that no ground gained before the war shall be given up. What has been done in the past shall be considered only a foundation and the beginning of what must be done in the future. The public must be made to understand that, although the need was great in the past, it is far greater at present. Secondly, equipment in the shape of hospitals, sanatoria, dispensaries, etc., must be developed for the care of Massachusetts men who may be returned to their own sections with tuberculosis. The Army plans to take care of its disabled men. We know that although the plans of the Army are made with great wisdom,—and I personally believe with splendid foresight,—yet those plans are subject to modification. We know that however rigid the ruling relative to the retention in military service of every soldier until he has had full treatment, there are going to be exceptions to this rule. Men who are sick want to be near their homes and to be treated by doctors in whom they have confidence. They and their families are often going to appeal to Congressmen and every other source of pressure to secure this

object. Therefore, in my opinion, we must prepare to a certain extent for the care of soldiers near their homes. Moreover, through the military cases we are likely to discover additional cases of tuberculosis by follow-up in the families of the soldiers. Therefore, you will need additional accommodation in your public institutions. In the private or semi-private sanatoria there will also be a need for development. Officers demanding somewhat better quarters than can be provided in the public institutions will come to you for accommodation. The need of an institution such as the new Crane Sanatorium at Rutland seems to be evident.

Finally, the State of Massachusetts must be certain that the closest possible coöperation between local, state and federal authorities shall be secured. In your State, local health groups have no trouble in coöperating with your most efficient State Health Department. I believe the same thing will hold true in coöperation with Federal authorities. Do not forget, moreover, that for emergency aid in public health work developing in connection with military necessities, the American Red Cross stands back of us ready to help. I wish to bear testimony to the splendid spirit of coöperation which one meets from the Federal authorities at Washington when you ask them to consider the problems that come up in connection with the fight against tuberculosis. For instance, we have been anxious as to the care of men who are discharged on account of tuberculosis from military service without military standing, or who are entitled to compensation and must wait for it. Apparently in all cases where there is emergency due to military conditions, the Red Cross is willing to help. Certainly by taking a broad point of view, by shouldering our own responsibilities and also bringing in on a reasonable basis, State and Federal agencies, we can accomplish the best results.

In closing, I wish to make an earnest appeal for hearty support of the measures taken by authorities in the field of public health. There may be certain details about which we may have differing opinions, and it may be our duty to bring the points of difference to the attention of the men who are at the heads of Departments in Washington. But when a ruling is made that touches us in our public health work, we must give it a whole-hearted and fully developed trial. I can bear testimony to the single-mindedness, the broad-mindedness, and the devotion of most of the officials with whom I have been in contact and who have been planning for the health of the nation under war conditions.

CONSERVATION OF MAN POWER IN INDUSTRY.

BY ANNA M. STAEBLER, BOSTON,

Secretary, Massachusetts Committee on Health in Industry.

THE need for conserving man power in industry has been suddenly forced upon the employer because of the drafting of men into the Army and a cutting off of immigration.

Before this country entered the war there was an almost reckless turnover of help, due largely to the fact that the employer knew there were plenty of men waiting at his gate to replace those who left his employ. The up-to-date employer made a study of the cause of turnover and tried to remedy it, because a frequent turnover was a loss. This has led and is leading to much industrial betterment.

The situation today is very different from that preceding the war. Many manufacturers are feeling keenly a shortage of help, while being pushed to the limit with contract government orders. Under such pressure the temptation has been to lower the labor standards, many of which were hard-won from time to time through legislation.

England and France have sounded a warning for us because of the mistakes they made, early in the war, by lowering their standards in the frantic rush to produce munitions and army supplies. Hours of labor were lengthened; Sunday, as a day of rest, was eliminated; women and minors were pressed into industry, and other such mistakes made, till fatigue and broken-down health had made such an inroad upon the necessary numbers of workers that drastic legislation was passed and rigidly enforced.

Notwithstanding this lesson, learned at such cost by the Allies, there are war industries in this country making the same mistakes with their eyes open, and yet blind to results.

In Massachusetts the maintenance of labor laws is carefully watched. We have a special War Emergency Commission which gives hearings once a week to manufacturers of war supplies, who ask for exemption from certain labor

laws for a limited period in order to fill their contracts on time. Representatives of organizations interested in good working conditions are present to see that standards are not unnecessarily lowered.

Labor conservation was recently given notable recognition in orders issued by the Chief of the Bureau of Ordnance to arsenal commanders and manufacturers filling war contracts, calling for the maintenance of advanced protective standards for the workers. A similar order was issued by the Quartermaster-General.

To quote from a bulletin issued in January, 1918, by the American Association for Labor Legislation: "These orders rank among the most enlightened official human documents ever issured by any government either in peace or in war. Their influence upon the movement to safeguard the health and safety of working men and women, and to protect children, cannot be overestimated."

Since these orders cover only the manufacture of munitions and the filling of war contracts, there are many remaining loop-holes for breaking down labor standards. Let us consider the chief of these; also the safeguards we may employ to combat them.

Hours of Labor.

Overtime is an industrial abuse, which needs unusually close watching at any time, and especially in war-time. It has been proved repeatedly and conclusively that there is an increase in output during the shorter working day. It was found, while making a time study "that women, working on moderately heavy lathe work, whose output was 100 units when working 75 hours a week, increased their output 34% when the hours were reduced to 60 per week, and 58% when the period was reduced to a 50-hour week. Men engaged on heavy munition work increased their hourly output from 100, on a 60-hour week, to 139 on a 50-hour week basis." (Boston Medical and Surgical Journal, April 4, 1918.)

The longer working day is, therefore, less economical. It commonly causes fatigue. Most employers and all insurance companies covering accidents and occupational diseases know that fatigue is largely responsible for accidents, sickness, diminished efficiency, loss of time and lessened output. Why, then, work a man, woman or child to the point of fatigue?

We look to the State Board of Labor and Industries to enforce the laws governing the length of the working day for men, women and minors, the length of the lunch period, the observance of Saturday afternoons, every Sunday and certain days as holidays. In addition to observing such laws, some manufacturers allow rest periods of ten or fifteen minutes during forenoon and afternoon. This results in a greater output. Women and young persons cannot work profitably for more than 5 hours continuously.

Fatigue is lessened by the 8-hour shift. A 24-hour period of two shifts shows greater fatigue and is less profitable.

Night Work. Attempting to turn night into day, especially for a continuous period of considerable length, should be avoided when at all possible.

Women and children should not be employed on night shifts, chiefly for moral reasons. If war conditions force women to do night work, their welfare should be carefully guarded.

Standards in Workrooms.

Standards to provide good light, adequate ventilation, sufficient heat, pure drinking water (supplied through approved and frequent bubblers), proper washing facilities, control of the spitting menace, approved seats, sanitary toilets, and to prevent danger from fire, accident, occupational diseases or other hazards, should be conscientiously observed.

A safe and sanitary workshop is an obligation due the employee by the employer.

Employment of Women.

The health of women workers should be conserved because many of them will be the mothers of our men, who will be the future strength of the nation. Six million women are employed in industry in Great Britain, two million of whom are working on shells, which is exacting, hard work. England and France learned that their health must be cared for or they would certainly break down. Let us profit by their lesson. Orders from the Ordnance Department and the Quartermaster-General read: "Night work for women should be prohibited. Effort should be made to restrict the work of women to 8 hours, even where the law permits a nine or ten-hour day. Special precautions to be taken regarding rest periods and seats, time and place for meals, Saturday half-holidays and lifting heavy weights. When it

is necessary to employ women in work hitherto done by men, care should be taken to make sure that the task is adapted to the strength of women. The standards of wages hitherto prevailing for men in the process, should not be lowered where women render equivalent service." No tenement house work.

Factory Day Nurseries.

At least three manufacturing firms in Massachusetts maintain day nurseries where children whose mothers are employd in the factories are cared for during the day. Is the shortage of men so great that mothers must be drawn into industry? That time may come, but has it arrived?

The place for the mother is in the home, caring for her children. Our child life must be conserved and the mother allowed to remain at home in order to help in this conservation.

The warning note against factory day nurseries has been struck loudly by public health workers.

Minors in Industry.

There are over 50,000 minors between the ages of 14 and 16 employed in Massachusetts. There are 8000 employed in Boston, showing an increase of 2000 in ten months, from Jan. 1 to Nov. 1, 1917.

If we sap or exhaust the vitality of our undeveloped boys and girls of today, we shall surely pay for it in physical, mental and moral weaklings a few years hence, unless they are most carefully guarded by protective laws. Regarding the health of these minors, they should be given a thorough medical examination before employment. I have been told that the present examination usually goes no farther than a glance at the child and the signing of a card. A thorough examination would disclose many opportunities for the treatment of incipient conditions and would, furthermore, enable the physician to designate in what industries and on what particular processes a boy or girl who had a slight physical impairment might safely work. The physician might be a medical vocational guide. He has a wonderful opportunity to do preventive and constructive health work.

These children should be encouraged to take up healthful recreation and they should be informed as to the opportunities open along this line. Between the ages of 14 and 16 these boys and girls should be compelled to attend continuation schools during the working day—not in the evenings. Boston established a continuation school in 1914, but it is the only city or town in the State making the attendance at such a school compulsory by law.

Prevention of Accidents and Occupational Diseases.

Insurance companies are making it worth while for employers to safeguard their employees against accident and occupational disease. Many plants have organized safety squads.

Effect of Alcoholism on Industrial Workers.

The drinking man is more susceptible to accidents and occupational diseases than the abstainer. He is affected more readily by fatigue, his capacity for skilled work is impaired, his muscular working capacity reduced, and his memory impaired. Alcoholism is a considerable cause of the shifting of labor, lost time and spoiled work.

Among drinkers there is greater frequency of accidents, a longer recovery period and a heavier death rate. Accidents decreased 54% in a Pennsylvania steel plant in the first six months after the town went dry, as compared with the same time in the preceding wet year. Some firms try to combat alcoholism in their men by offering non-alcoholic drinks, including coffee and milk at less than cost. National prohibition only will be the solution of the problem.

A scientific study made by a sick benefit society found that drinkers 25 to 34 years of age lost 372 days in recovering from wounds for every 100 lost by the average insured man, while their death ratio was 4 to 1.

Industrial Nursing.

Approximately 125 factories and stores in Massachusetts have established nursing service, and employ nurses on full or part time. These nurses do first aid work, inspect the sanitation of the plant and tenements, do social service work, and, in the isolated mill towns, often do bedside nursing in the homes, as a visiting nurse would do. Their work is preventive and constructive. Insurance companies consider that the industrial nurse is a safety factor and so allow a reduction in the rating to firms employing nurses. Undoubtedly she is the most potent factor we have in conserving the health

of the employee. Our Committee on Health in Industry has been, for nearly three years, interesting employers in the value of the trained nurse in industry. Last year we helped to establish nursing service in 20 plants. In addition to this important piece of health conservation work, 53 noon health talks were given in factories to approximately 4000 women employees. Three of our largest department stores asked for these talks to be given to their employees. Three thousand leaflets on health subjects were distributed after the talk. Our exhibit on health in industry is sent to any part of the State. Slides are used for illustrated talks on subjects pertaining to health of workers and good working conditions.

We stand ready to help in conserving man power in industry.

The war has revealed, more than the days of peace, the need for good working conditions and the maintenance of the health of industrial workers.

To maintain health means to maintain working efficiency, while reduction of health means loss of efficiency. Sickness decreases the individual's production and increases the risk of accident. An epidemic of sickness, be it nothing more than grippe, can completely disorganize a department or even an entire plant. Every man is needed on his job these days. Everything possible should be done in the way of legislation and the enforcing of the laws to conserve the safety, health and vitality of the industrial army, on which depends the supply of munitions, food and clothing and, more than all, ships to carry them across.

Original Articles.

IDIOPATHIC EPILEPSY A SYMPATHICOPATHY.

By Edward A. Tracy, M.D., Boston.

(Continued from page 814.)

The association of pigment spots with vasoconstriction spots, and the constant presence of both in idiopathic epilepsy, is shown by the following observations, copied from the records of fifty-eight patients.

Case 3. Obs. 1511. Right forearm: dorsal surface shows vasoconstriction spots and one pigment spot. On palmar surface, one vasoconstriction spot; a pigment patch near the wrist.

Case 2. Obs. 1507. On right forearm, palmar surface, two vasoconstriction spots; one pigment spot near ulnar styloid.

Case 4. Obs. 1515. Vasoconstriction spots and pigment spots on dorsal surface of right forearm, and on palmar surface of left forearm.

Case 5. Obs. 1518. Vasoconstriction spots and pigment spots on dorsum of left forearm, and also on plantar surface.

Case 7. Obs. 1524. Vasoconstriction spots on dorsal surface of right forearm, and a vasoconstriction spot and pigment spots on plantar surface.

Case 8. Obs. 1528. Vasoconstriction spots and pigment spots on dorsum of right forearm, and on palmar surface a vasoconstriction spot and a few faint pigment spots.

Case 9. Obs. 1531. Vasoconstriction spots on dorsum of right forearm with pigment spots.

Case 10. Obs. 1535. On dorsum of left forearm are three vasoconstriction spots and numerous pigment spots.

Case 11. Obs. 1539. On right forearm, palmar surface, are vasoconstriction spots and a pigment spot.

Case 12. Obs. 1543. On right forearm—palmar surface— a vasoconstriction patch and one pigment spot. On left forearm—palmar surface—a vasoconstriction spot and a faint pigment spot.

Case 13. Obs. 1546. On right forearm, dorsal surface, one small vasoconstriction spot and a pigment spot.

Case 14. Obs. 1550. Vasoconstriction spots and pigment spots on palmar surface of right forearm; on dorsal surface similar conditions.

Case 15. Obs. 1554. On left forearm, palmar surface, vasoconstriction spots and pigment spots.

Case 16. Obs. 1557. Vasoconstriction patches and several pigment spots on palmar surface of right forearm. On palmar surface of left forearm, vasoconstriction spots and a few faint pigment spots.

Case 17. Obs. 1561. On dorsum of right forearm are four pigment spots and a vasoconstriction patch; on the palmar surface are a few vasoconstriction spots and a few faint pigment spots. A similar condition observed on left forearm.

CASE 18. Obs. 1565. Right forearm: dorsal surface shows vasoconstriction spots and innumerable freckles; palmar surface shows vasoconstriction spots and pigment spots; palmar Left forearm: dorsal surface shows vasoconstriction spots and pigment spots; palmar surface, numerous vasoconstriction spots, freckles, and a large pigment spot.

CASE 19. Obs. 1569. Vasoconstriction spots and pigment spots on dorsum of right forearm. Vasoconstriction spots and pigment spots on palmar surface of left forearm.

CASE 20. Obs. 1573. Right forearm: dorsal surface shows vasoconstriction spots and pigment spots. Left forearm: a few vasoconstriction spots and pigment spots.

CASE 21. Obs. 1576. Left forearm shows vasoconstriction spots and numerous faint pigment spots on the dorsal surface.

CASE 23. Obs. 1581. Right forearm: dorsal surface, vasoconstriction spots and pigment spots; palmar surface, vasoconstriction patches and pigment spots. Left forearm: dorsal surface, vasoconstriction spots and two pigment spots.

CASE 24. Obs. 1584. On dorsum of left forearm, a vasoconstriction spot and six pigment spots; on palmar surface, a few vasoconstriction spots and pigment spots.

CASE 25. Obs. 1588. Left forearm: palmar surface, vasoconstriction spots and one faint pigment spot; on dorsal surface, pigment spots. Right forearm: on dorsal surface, scar from a burn.

CASE 26. Obs. 1592. Right forearm: on palmar surface, vasoconstriction spots and pigmented skin near the wrist.

CASE 27. Obs. 1595. Left forearm: dorsal surface shows vasoconstriction spots and seven pigmented spots; palmar surface shows vasoconstriction spots and two pigment spots. Right forearm (redder): on dorasl surface numerous vasoconstriction spots and pigment spots; on palmar surface, one pigment spot.

CASE 28. Obs. 1598. Right forearm: on palmar surface, vasoconstriction spots and a few minute pigment spots. Left forearm: on dorsal surface, vasoconstriction spots and many pigment spots.

CASE 29. Obs. 1602. Left forearm: vasoconstriction spot near wrist and pigment spot on hand—dorsal surfaces.

CASE 30. Obs. 1606. Left forearm: dorsal surface shows vasoconstriction spots and pigment spots.

CASE 31. Obs. 1609. Right forearm: palmar surface shows vasoconstriction and pigment spots. Left forearm: dorsal surface shows vasoconstriction spot and pigment spots.

CASE 32. Obs. 1611. Left forearm: dorsal surface shows vasoconstriction spots and pigment spots. Right forearm: numerous white scars, vasoconstriction spots and pigment spots.

CASE 33. Obs. 1614. Left forearm: dorsal surface shows vasoconstriction spots and pigment spots; palmar surface shows vasoconstriction spots and pigmented skin near wrist. Right forearm: dorsum is red, mottled, and shows vasoconstriction spots and pigment spots; palmar surface also shows vasoconstriction spots and pigment spots.

CASE 34. Obs. 1617. Left forearm: dorsal surface shows vasoconstriction spots and a pigment spot on the wrist. Right forearm, vasoconstriction spots and pigment spots on both surfaces.

CASE 35. Obs. 1619. Left forearm: palmar surface shows vasoconstriction spots and pigment spots. Right forearm: dorsal surface shows vasoconstriction spots and pigment spots.

CASE 36. Obs. 1622. Left forearm: palmar surface, vasoconstriction spots and pigment spots.

CASE 37. Obs. 1625. Left forearm: dorsal and palmar surfaces show vasoconstriction spots and pigment spots.

CASE 38. Obs. 1627. Right forearm: dorsal and palmar surfaces show pigment spots. Left forearm: dorsal surface shows pigment spots.

CASE 39. Obs. 1630. Right forearm: dorsum shows vasoconstriction spots and pigment spots. Left forearm: dorsum shows vasoconstriction and pigment spots.

CASE 40. Obs. 1632. Left forearm: dorsum shows vasoconstriction spots and pigment spots.

CASE 41. Obs. 1636. Right forearm: dorsal and palmar surfaces show vasoconstriction spots and pigment spots. Left forearm: dorsum shows vasoconstriction spots and pigment spots.

CASE 42. Obs. 1638. Left forearm: palmar surface shows vasoconstriction spots and pigment spots.

CASE 43. Obs. 1641. Left forearm: dorsal and palmar surfaces show vasoconstriction spots and pigment spots.

CASE 44. Obs. 1643. Left forearm: on dorsum, vasoconstriction spots and a small pigment spot.

Case 45. Obs. 1645. Left forearm: palmar surface shows vasoconstriction spots and pigment spot near the wrist. Right forearm: palmar surface shows pigment and vasoconstriction spots.

Case 46. Obs. 1648. Right forearm: dorsum shows vasoconstriction spots and pigment spots.

Case 47. Obs. 1650. Right forearm: dorsum shows pigment and vasoconstriction spots.

Case 48. Obs. 1652. Righ forearm: dorsal surface shows vasoconstriction spots and pigment spots.

Case 49. Obs. 1655. Left forearm: dorsum shows pigment and vasoconstriction spots.

Case 50. Obs. 1658. Left forearm: dorsum shows vasoconstriction spots and pigment spots.

Case 51. Obs. 1661. Left forearm: palmar surface shows vasoconstriction spots and pigment spots.

Case 52. Obs. 1665. Left forearm: palmar surface shows vasoconstriction spots and pigment spots. Right forearm: dorsum shows similar conditions.

Case 53. Obs. 1668. Left forearm: dorsal and palmar surfaces show vasoconstriction spots and pigment spots.

Case 54. Obs. 1671. Right forearm: dorsum shows pigment and vasoconstriction spots.

Case 55. Obs. 1675. Left forearm: palmar surface shows vasoconstriction spots and pigmented skin near the wrist.

Case 56. Obs. 1677. Right forearm: dorsum freckled and shows vasoconstriction spots; palmar surface shows vasoconstriction spots and three large pigment spots.

Case 57. Obs. 1681. Left forearm: dorsal surface shows two small pigment spots, and near the wrist a few vasoconstriction spots. Right forearm: dorsal surface shows three small pigment spots and three vasoconstriction spots—the latter near the wrist.

Case 58. Obs. 1697. Vasoconstriction spots and pigment spots on dorsal surfaces of both forearms.

Case 59. Obs. 1705. Vasoconstriction spots and pigment spots on palmar surface of right forearm.

Case 60. Obs. 1711. A few pigment spots on dorsum of right forearm and two vasoconstriction spots near them.

Case 61. Obs. 1721. Vasoconstriction spot on dorsum of right forearm, near the wrist, and pigment spots.

Other observations connected with vasoconstriction spots appear in the records. A few of them are here copied because of their interest:

Obs. 67. On left forearm a vasoconstriction spot near the stroked area became more intense (in color) after the stroking.

Obs. 49. Vasoconstriction spot on left forearm, while under observation, became more intense in color and larger.

Obs. 60. On right forearm, vasoconstriction spots were observed becoming whiter.

Obs. 40. Vasoconstriction spot on right forearm was seen to enlarge while under observation.

Obs. 92. On left forearm, vasoconstriction spot was observed to have changes in its intensity while the patient slept after an attack of convulsions.

Obs. 118. Four vasoconstriction spots on right forearm and none on left. Shortly after, one appeared on left forearm.

Obs. 120. On right forearm, vasoconstriction spots were seen, which changed in intensity while being observed.

Obs. 123. Vasoconstriction spot on left forearm was seen to increase in intensity. Three vasoconstriction spots on the right forearm almost disappeared, that is, were seen to lessen in intensity in the course of a few moments.

Obs. 143. Vasoconstriction spot observed on ulnar side of the left hand.

Obs. 158. Vasoconstriction spots on both forearms. One on ulnar side of left hand.

Obs. 152. Vasoconstriction spots on both forearms were observed to become more intense after stroking.

Obs. 220. After stroking right forearm (in testing for reaction time) spots were observed to become more intense—whiter.

Obs. 145. Vasoconstriction spots on left hand became more intense after stroking left forearm.

Obs. 1698. Stroking near by a vasoconstriction spot (in testing for reaction time) was followed by the spot becoming whiter.

These latter observations, confirmed by many repetitions, are important for two reasons: they prove that the vasoconstriction reaction is a true reflex, as reflex action is the only explanation of the intensifying observed of the vasoconstriction spots after nearby stroking; and they demonstrate a lesion of the reflex neurone paths that allows stimuli to be reflected out of the normal paths of the reflex. These observations, moreover, suggested a method that at times is helpful in diagnosing a vasoconstriction spot. If we stroke near by a suspected spot, and the stroke is followed by intensifying of the spot coincident with the reflex vasoconstriction evoked in the stroked area, doubt of its true nature is removed by the vasoconstriction it actively manifests.

(To be continued.)

Society Report.

THIRTY-SECOND ANNUAL MEETING OF THE AMERICAN ORTHOPEDIC ASSOCIATION.

ARMY MEDICAL SCHOOL, WASHINGTON, D. C., APRIL 22-23, 1918.

(Continued from page 823.)

MECHANO-THERAPY.

PROF. A. E. BOTT of Toronto presented this subject. The use of appliances to assist physical re-education was dealt with, as also the question of the removal of mental disability associated with impairment of physical function. The principles had been applied to 300 cases of military returned patients. The majority of these were orthopedic cases. The work had been largely experimental in its early stages, and it had often been found necessary to modify apparatus, but not the principles. There were three important divisions of treatment: (1) special muscle training section, (2) gymnasium, (3) amputation. All treatments were made highly individual and specialized. The success of the gymnasium was found to depend largely on the personality of the medical officer in charge. A hopeful, active personality was essential. Patients were grouped in classes according to specific disabilities, and special exercises were given to the development of the stump before fitting an artificial limb. The weakened muscles of the stump needed special development; and preservation of coordination of the part, which was quickly lost after amputation, was especially sought. The mental attitude of the patient received careful study and training. The men were particularly impressed with the fact that their condition could be greatly improved. After a careful first examination to establish the amount of disability, frequent reëxaminations were made and progress charted. The appliances were used only as means to an end, and the purely temporary character of such assistance was emphasized. The apparatus was made as plain and unvarnished as possible and any complicated mechanism kept out of sight, in order to avoid impressing the patient with the seriousness of his disability.

DISCUSSION.

DR. C. F. PAINTER said that the most important thing he could say upon the subject of physicotherapy was in regard to the request which had been put to the members of the Association, relating to their attitude in the selection of the women who were to help the Government by their work as masseuses, in the physical re-education of the wounded and disabled soldiers. All orthopedic men who had to do with massage would realize that there was much difference in the workers in this branch. A renewed emphasis should be placed upon the importance of selecting the right kind of workers to carry out this particular method of therapy. The most careful selection was necessary to aid the work of military service in this respect. Not only were technically competent people necessary, but people of intelligence and education. The American surgeon was accustomed to pay very little attention to this work, and abroad it had been done very much better than in this country. In some of the countries now at war, part of their success had been due to the fact that they had been able to refit many of their men to return to the line, and this had been greatly facilitated by proper attention to massage. In order to keep the standard of this work high, orthopedic men should be careful in the persons they recommended for this class of work and in insisting

that the necessary qualifications be possessed by these individuals.

Dr. S. I. Franz said that he was very pleased to have the opportunity to hear these papers. He looked upon this work largely from a research point of view, and he knew little actually of mechanotherapy. In the experience gathered from neurological cases he found that the facts gathered by physiologists had been largely lost sight of. Cases of organic hemiplegias left to themselves had been considered hopeless, but physiologists had found that animals did not remain paralyzed if the hemiplegia was due to destruction in the motor center of the brain. This had led to work upon old hemiplegia, with successful results. Dr. Bott had made many very interesting statements in his paper, and one point brought out was the difference in results obtained in individual and collective treatment. Which was the better method? How far ought one to sacrifice the individual to the many? To deal with each patient separately, one would have to have a teacher to each patient, and this was manifestly impossible. The importance of the competitive spirit when training collectively must not be lost sight of. In the use of mechanical therapeutics there was the question as to how fatigue could be measured. Dr. Franz said he had been accustomed to use manipulation plus apparatus, because he could better control the method, not in the manner deprecated by Dr. Bott, but because he knew then the amount of work the muscles were doing. The combination of manipulation and apparatus gave better results than the use of either alone. In most work carried out special attention had been paid to the aspect of movement; that was especially true in poliomyelitis cases. One could not, however, divorce muscle response from nerve impulse. In movement, three factors were apparent,—force, extent, time. In poliomyelitis work, attention had been centered entirely on *force*. For perfect contraction there must be exerted a certain force to a certain extent in a certain time. More attention should be paid to these points. The next point was the attitude of the patient. This had attracted an enormous amount of attention because of what the Freudian School called "over-response."

It was highly important from the psychic side that the patient should feel *satisfied*. Certain patients would do things agreeable to them and these things might prove to be just as good exercise as the one the physician would pick out for them to do. They would get results because their attitude was not antagonistic. Dr. Franz said he had obtained results, even though he had had to work with a bad class of patients,—insane hemiplegiacs, when he had obtained a satisfied attitude on the part of the patient. This willingness could often be obtained by saying exactly what one was trying to do, and by pointing to results obtained in other patients. As an example of this Dr. Franz said that he had one patient, an ignorant old Irish woman, paralyzed in the right arm and leg, who came to his laboratory. It was intensely hot weather, and he allowed her a fan if she would use it with the right hand. She learned to fan herself with the right hand in two days, and in a few weeks she learned to sew accurately. Her interest had been gained, and was an important part of the cure.

Dr. F. B. Granger said that in the question of physico- and electrotherapy, members of the profession were given a chance to stand or fall on their own merits. The most intelligent use was to be made of such measures if they were to have good results. The utmost coöperation in all branches of therapy must be given to military work, and if used intelligently as adjuncts these methods would give surprising results. The effects might be enumerated as: (1) chemical, (2) diathermal, (3) mechanical, (4) psychical. In regard to the first, chemical effects were obtained by the galvanic current in the use of ionic medication. Drugs could be introduced locally without strain on the digestive system. Using this method, the duration of local anesthesia by cocaine persisted better than by hypodermic injection. In regard to diathermy, the procedure was raised to the *n*th power and the tissues heated through and through, as under these conditions the skin offered no resistance and remained hot. By such means a piece of meat could be cooked from the center out. Tissues of growths could be controlled by this method. In regard to the physiological effects of electricity, these had been pretty well mapped out in their application to pathology. Deep-seated tissue could be given passive exercise; atonic muscles could be restored to normal, and intestinal atony could be treated by the sinusoidal current. In the study of the reaction of degeneration, it was found that there was an active contractile element;

there was also another element which would respond only to prolonged stimulation.

LIEUT.-COL. R. WILSON said in closing that they must all feel it a duty to concentrate their efforts upon reconstruction. In this matter it was necessary to make a compromise between individual and collective methods. The greatest amount of energy must be expended upon class work because of the large numbers who would have to be trained. It would be absolutely impossible to have an individual teacher for each patient. The best one could do would be to classify small numbers and give more attention to those who had to have individual treatment. It was a question of organization. The treatment should be homologous, and the same methods of teaching should be used from one end of the country to the other. This was done in Canada and would have to be done in the United States. Again, the simplicity of apparatus was important. One should not be misled by manufacturers who had ingenious devices for extracting money. In regard to appliances, an institution in Belgium had been observed, where all kinds of complicated apparatus were on view, with patients demonstrating its use. Only one patient was observed to take any interest in the tools and he was going through all the motions with great energy. The visitor pointed him out and remarked that he seemed to be getting a lot of good from the apparatus and asked what was the matter with him. They were told that he had no disability at all, but that he was the inventor of the machine and was trying to demonstrate it in order to sell it. The Bristow faradic coil with two windings was useful for promoting painless contractions. It was highly important that there should be a research laboratory in connection with the central school, where a large number of questions could be worked out. The questions of growth of bone and of nerve tissue could be investigated in such a laboratory. The orthopedic men, the physiologists and the physicotherapists could work and consult together on such questions. Among many new questions that came up, one was likely to forget what had already been done. The matter of electric anesthesia was one of these. The possibility of this method was well worth while considering. All workers should get together to consider the best methods.

BEDSIDE OCCUPATIONAL THERAPY AS PROPOSED FOR THE MILITARY HOSPITALS.

MAJOR HENRY R. HAYES gave this paper (by invitation). This was, he said, by no means a new procedure. The experience of civil life was being applied to military hospitals. In the Walter Reed Hospital, Washington, D. C., the principles of occupational therapy were being tried out. Hitherto, the army had been solely concerned with the return of the soldier to active duty, but there were many who would be fit only for restricted duty, and some for civil life. Ward occupations were instituted for those patients still in bed and in chairs, and was to be considered as prevocational, intended to stimulate the patient to return to regular work later. One essential of the treatment was that the work should be continuous. It was of the greatest consequence that the work should not flag or lapse owing to lack of material. Such occupations as weaving, rug and mat making, wood-carving, basketry, and beadwork could be well handled by patients. The work should be simple, easily finished and have commercial value. This would afford the patients training in concentration and coördination.

THE BRISTOW FARADIC COIL IN ORTHOPEDIC PHYSICAL THERAPY.

DR. ALBERT H. FREIBERG presented this paper. It was stated that the author did not believe that electricity had any specific curative effects upon the results of injury and disease of the muscles and nerves, yet it would seem likely to prove valuable as a means of accurately localizing functional stimulation. To do this by means of gymnastics or massage alone was admittedly unsatisfactory. The Faradic current, as hitherto employed, is impracticable, because if used with sufficient strength to produce efficient muscle contraction, it is very painful. By means of the Bristow coil muscle contraction might be produced without pain, even in the large muscles, such as the quadriceps of the thigh. A brief description of the coil and its construction were given, also its uses and the precautions to be observed in technic.

DISCUSSION.

MAJOR M. T. FOLEY said he had been working for three months and had at last succeed-

ed in getting orthopedic wards to take up the work. An old building was in use and the first curative workshop was established. The essential of the work was that it was to be entirely curative. Various grades of work were prescribed for patients with contracted fingers, with wrist-drop, or other disabilities. Typewriting was used in some cases, in others work with the fret saw. Convalescence was much hastened by the treatment and the medical results had been noticeable. Objections to the work had been made on the part of regular army surgeons who had not been able to see how the men were improved by it. Another point which they disliked was the untidiness in the wards, which was contrary to the ideas of regular military cleanliness.

FOOT PROBLEMS AND TREATMENT WITH UNSEASONED TROOPS.

Captain Clarence B. Francisco, M.R.C., A.E.F., presented this paper. One of the first difficulties he said was to secure shoes large enough to meet new demands. The ordinary man in civil life walked little and the muscular development of the foot was prevented. A No. 9 foot usually tried to wear a No. 7 shoe. The strain of marching, with the addition of the heavy pack on the back, necessitated wearing of a shoe two sizes larger than in civil life. Trench foot had now come to be considered a preventable disease. The Thomas heel and the French marching strap had proved very useful in prevention of foot strain. The ordinary commercial arch support should be legislated out of the market. Men with marked deformities of the foot, such as hallux valgus, hammer toe, rigidity and flat foot, should not be sent abroad. Such cases were sure to break down under the unusual strain and to take up space in hospital needed for more sick patients. Examinations recently had been conducted rather with the view of preventing possible slackers from escaping, than with that of the fitness of candidates. Therefore, many men with useless feet, from the military standpoint, had been entered.

FOOT PROPHYLAXIS IN THE SOLDIER.

This paper was read by Major J. T. Rugh, M.R.C. The subject dealt with the recognition of the potentially weak foot and its restoration to full strength and efficiency. This might sound in theory an easy matter, but its practical application was very difficult in the service. The problem might be divided into four headings: (1) feet, (2) shoes, (3) officers, (4) soldiers. Emphasis was laid upon the necessity of instruction to the officers in order that they might be able to detect in time the potentially weak feet. In the examination of 50,000 soldiers, 27½% were found to have functionally weak feet. The short heel and weak tendon was found a most potent cause of disability. In regard to the shoes, need of proper care in drying the shoe when wet was pointed out. The sock should be worn inside out, or with the smooth side next the foot, on a long march. Oiling the shoe would prevent its becoming stiff and hard. The Munson type of shoe would be found to fit 98% of the men satisfactorily and would save 8 out of 10% of foot inefficients. In regard to feet, all types were found among the men, and the young soldier up to 25 years of age was very adaptable. After that the foot became less elastic. Factors of weakness were: short heel tendons, hypertrophied scaphoid, supernumerary tarsus, congenital valgus, bad shoes, improper posture, muscle weakness, overwork. In regard to the soldier, there was always a certain factor of moral obliquity to be dealt with. There was a vast amount of difference in the mental attitude of the drafted man and the man who voluntarily enlisted. Influence of a man with foot disability was apt to spread unfavorably, and it was found necessary to treat the malingerers by detailing them to hard and unpleasant duties. The chief prophylactic measures employed were: (1) detection of weak cases, (2) proper alteration of shoes, (3) instruction as to walking, (4) exercises, (5) protection from strain. These measures were combined in the general scheme of restoring, where possible, the individual to fitness for service. It was felt that if a man was fit to work for himself and family he was fit in some way to serve the Government in the present crisis.

THE ORTHOPEDIC SERVICE AT FORT RILEY.

Major J. P. Lord, M.R.C., gave this paper. When the examining boards began their work it was a matter of surprise that there were so many potential cripples. Of 5000 men measured, 76% were found with foot inefficiency in some form. A number of malingerers were always to be found, and there was a certain psychology behind this (often very persistent sham)

that needed special measures to deal with it. In regard to foot disabilities, there was an extraordinary number of cases of the following: over- and under-riding toes, exostosis of os calcis, of internal cuneiform, and of first and fifth metatarsals. Other disabilities noted were: abnormalities in hip joint, knee joint, disturbances due to excessive drill, arthritides and mouth infections, primary minor ailments, plus the psychoses, metastatic joint infections. In the advisory work, the orthopedic surgeon was secondary in function to the psychologist.

FOOT DISABILITIES IN THE MILITARY SERVICE.

This paper was given by MAJOR HAROLD D. CORBUSIER, M.R.C. This was a preliminary report on the reconstruction of recruits. The march constituted one of the chief duties of a man on campaign. A successful march placed the men at their destination in the best condition. Unless the soldier could reach his place in the firing line, he was useless as a rifleman. It was often seen in military manoeuvers that many stragglers limped into camp late at night, as they were not able to keep up with the march. Napoleon had said that the general who produced the best military shoe would do most to produce an efficient army. This was most true in the present crisis. The American foot seemed particularly prone to disability. The men must be trained to make the best possible use of the legs and feet. Battles were won and lost by legs as well as by rifles. Military service put the most unusual strain on feet accustomed only to the demands of civil life. Flat foot was a common cause of disability. Of 12,000 soldiers, 960 had flat feet to some degree. Among the drafted men it was supposed that there would be exaggerated symptoms, but it was found that there were 9.25% flat feet among the volunteers and 7.25% among the drafted men. However, there were always to be found cases of genuine malingerers. The psychology of the men was a matter for careful observation. It was unwise to inform the malingerer that he was suspected. The best treatment was by hard and unpopular duty. These men often asked to be sent back to regular line duty of themselves, the treatment having proved too vigorous for comfort.

(To be continued.)

Book Review.

Infant Feeding. By CLIFFORD G. GRULEE, A.M., M.D., assistant professor of pediatrics at Rush Medical College (in affiliation with the University of Chicago); Attending Pediatrician to Presbyterian Hospital, and to the Home for Destitute Crippled Children, Chicago. Third edition, thoroughly revised. Octavo of 326 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1917.

In this, the third edition, the author has incorporated the advances in the knowledge of infant feeding and of the infants' metabolism which have been made in the last few years. The chapter on absorption and metabolism has been considerably enlarged and the others revised where it was necessary. The general plan of the work is the same, however, and its merits and defects the same as in the past. It gives a very fair idea of the teaching of the German School of Pediatrics.

War Nursing. A Textbook for Auxiliary Nurses. By MINNIE GOODNOW, R.N., a War Nurse in France. Philadelphia: W. B. Saunders Company. 1918.

This textbook is written by a nurse, who has served in France in the present war, for women who realize the need of America and wish to serve their country in the capacity of nurses, even though they have not had hospital training. The book deals with the care of the wounded from the time of their entrance into the hospital to their dismissal, and gives adequate information with regard to the nurse's duty to her patients. It is admittedly a textbook of nursing as applied to the present war, and is not meant for the graduate, but for the auxiliary—the Nurse's Aid—who has had little or no previous training, but who wishes to learn the fundamental things which will be of use to her in war service. It might well be used in teaching Red Cross or other training classes.

The work contains only material applicable to military nursing, is adapted to war conditions and war hospitals. It covers the ground thoroughly, from the etiquette and discipline to be followed in the hospital ward, to the actual assistance which may be rendered in the care of wounds, bed-making, bathing, diet, medicines, bandaging. No attempt is made to disguise the difficulties and hardships attendant upon war nursing. It is written by a woman who has herself seen much service in the present war, and who knows conditions in their actuality.

A Bibliography of the War Cripple. Compiled by Douglas C. McMurtrie. New York City: The Red Cross Institute for Crippled and Disabled Men. 1918.

The extent of public interest in the rehabilitation of crippled soldiers is evidenced by this first publication of the Red Cross Institute for Crippled and Disabled Men, entitled "A Bibliography of the War Cripple," compiled by Douglas C. McMurtrie. There are listed no less than 1022 separate books, reports, and articles dealing with the reconstruction and re-education of maimed men. Practically all the material has appeared since August, 1914.

The list includes entries referring only to physical cripples, and not to blindness, deafness, and mental derangement incurred by soldiers. The material referred to is largely in French and German. Of the entries in English, more have been published in America than in England, in spite of the comparatively recent entrance of the United States into the war.

This bibliography is the first of a series of scientific publications to be issued by the Red Cross Institute for Crippled and Disabled Men. It may be obtained without charge by addressing the office of the Institute at 311 Fourth Avenue, New York City. The list, which is practically complete, will be found invaluable by any one seriously interested in the American program for reconstructing disabled soldiers.

Elements of Pediatrics for Medical Students. By Rowland Godfrey Freeman, A.B., M.D., Adjunct Professor of Pediatrics, New York University and Bellevue Hospital Medical School; Attending Pediatrist to The Roosevelt Hospital, New York, etc.; ex-President of The American Pediatric Society. New York: The Macmillan Company. 1917.

The author states in his preface that the aim of this little book is to impart in a simple and concise form information regarding the characteristics of children and the problem of keeping infants and children well by proper régime and feeding, and, in addition, to summarize the important facts to be obtained by physical examination, by examination of the urine and feces, and by roentgen-ray examination, and to review briefly the essentials of diagnosis and treatment. It seems to us that he has attempted the impossible in endeavoring to give a satisfactory presentation of so large a subject in so small a space. For this reason the book is necessarily incomplete and superficial and contains many half-truths and minor misstatements. It is hardly suitable for mothers, and is not complete or accurate enough to serve as the basis for the training of students. We wish that the author would rewrite it in about four times as many pages.

The Conduction of the Nervous Impulse. By Keith Lucas, Sc.D., F.R.S. Monographs on Physiology. Longmans, Green and Company. 1917.

No number of the series of Monographs on Physiology will be more welcome than this, and certainly none has or will have more permanent classic value. In the death of Keith Lucas a little over a year ago, physiology lost its ablest worker in the problems of fundamental neurology. It is indeed fortunate that just prior to the outbreak of the war Lucas had delivered seven lectures at University College in London. These summed up his work and that of his pupils upon the processes of excitation and conduction in muscle and nerve, and were to have been amplified to meet the needs of monographic publication. From the outbreak of the war until his death in October, 1916, in an aeroplane accident, Lucas himself was too deeply in government work to think of the physiology of the nerve impulse, but the nucleus of the volume was at hand and is now given to us through his pupil, Adrian.

It will come as a pleasant shock for those who fear the matter which such a volume must contain to find how beautifully easy abstract physiology becomes in the hands of Lucas, who was a master not only of experimentation, but also of expression. While fundamental facts in science are usually and properly the simplest things in the world, few of their discoverers have the power of making them so for others. Readers of this book will have no doubt of the author's success in both lines.

The monograph presents a fairly complete picture not only of experimental results but of the methods used in obtaining them. Thus there is excellent discussion and description of the measurement of the nerve impulse by interpolation of a region of decrement between the point of stimulation and the recording muscle. The application of this method in Adrian's classical demonstration of the "all or none" character of the impulse, is given early in the book, together with a critique of other work upon impulse evaluation. The significance of regions of decrement in normal conduction between nerve and muscle, and in reflex arc conduction, follows very naturally, as does discussion of summation in similar positions.

It is refreshing to watch the enmeshing of the philosophical vagaries of Verworn, and the modern German school of neurology, in the net of close analytical experimentation which Lucas has so untiringly woven about them. Both clinical and experimental neurologists will benefit by the elimination of speculation from the fundamental conceptions of their work, and it is a great pleasure to recommend the monograph to both classes of observers of the physiology of the nervous system.

THE BOSTON
Medical and Surgical Journal

Established in 1812

An independently owned Journal of Medicine and Surgery published weekly under the direction of the Editors and an Advisory Committee, by the BOSTON MEDICAL AND SURGICAL JOURNAL SOCIETY, INC.

THURSDAY, JUNE 20, 1918.

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Papers for publication, and all other communications for the Editorial Department, should be addressed to the Editor, 126 Massachusetts Ave., Boston. Notices and other material for the editorial pages must be received not later than noon on the Saturday preceding the date of publication. Orders for reprints must be returned in writing to the printer with the galley proof of papers. The Journal will furnish free to the author, upon his written request, one hundred eight-page reprints without covers, or the equivalent in pages in the case of articles of greater length.

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BLOOD PRESSURE FINDINGS IN DISEASE.

THE real value of the accurate estimation of the blood pressure by means of the many types of blood pressure apparatus is overlooked if confined to the mere estimation of the number of millimeters of mercury that the systolic or diastolic pressure registers in every case that happens to come up for medical examination. In fact, high or low blood pressure dissociated from tangible disease has very little significance except in a few instances of excessively high pressure, when the condition is apparent even without this instrument of precision. Yet it is by no means our intention to minimize the value even of these abstract findings, but rather to emphasize the importance of continually determining the state of the blood pressure during operations and during the course of disease. Blood pressure readings will influence the prognosis as well as the treatment. It is now fairly well established that the taking of the blood pressure before determining upon any but the most urgent surgical operations will give valuable information concerning the amount of cardiac efficiency, and in this way anticipate sudden cardiac failure during the anesthesia. A fall of blood pressure after mild exertion is an indication of a deficient cardiac reserve, for in ample cardiac reserve mild exertion causes a rise in blood pressure. The taking of the blood pressure during the course of the anesthesia will often give warning of impending heart failure long before the signs of actual failure require drastic measures in an attempt to save the patient's life. In suspected internal hemorrhage, the marked lowering of the blood pressure usually corroborates the suspicion. Excessively high blood pressure in impending eclampsia demonstrates the need for immediate depletive measures.

During the course of the infectious diseases constant blood pressure readings will, perhaps, give better clues to impending complications than the pulse or the thermometric readings. In pneumonia, it is usually found that when the systolic blood pressure reading, expressed in millimeters of mercury, does not fall below the pulse rate, the prognosis is good; when it does, the most active stimulation is necessary to save life. Distinct fall of the blood pressure during the course of diphtheria is an indication of grave cardiac failure and probably a fatal outcome. In scarlet fever the sudden rise of the blood pressure indicates renal disturbance, even before the urinary findings make their appearance. In typhoid fever the range of the blood pressure is usually somewhat lower than obtains otherwise, but a marked and sudden drop indicates hemorrhage, even though the bleeding is not otherwise apparent. Perforation and peritonitis, on the other hand, are usually accompanied by a rise in pressure. Low pressure is characteristic of the course of tuberculosis, but is, in all probability, an indication only of the generally low vitality.

Unless the blood pressure instrument is constantly used in disease much valuable aid to diagnosis, prognosis and treatment will be lost. While the mercury instruments are much the

best to use, they are not so easily portable as the spring instruments. In the field the latter instruments are being used for this reason.

TUBERCULOSIS AND PREGNANCY.

The denial of the privileges of marriage and maternity to advanced cases of pulmonary or other forms of tuberculosis can, of course, allow of no exceptions. When, however, this question arises in respect to cases that are undoubtedly arrested for a considerable period, a just decision is very difficult to make. In this connection it must be remembered that healed tubercular lesions are so often discovered in persons in whom they were not otherwise suspected that spontaneous recoveries without affecting the future life activities of such individuals must be very large. Moreover, modern prophylactic measures and rational methods of treatment reclaim so many of the undoubted active cases that the tubercular cases which must be denied these privileges become comparatively few. Walsh (*American Journal of Obstetrics*, February, 1918) points significantly to the fact that the number of cases of pregnancy that come through without additional hurt to the mother, when the tubercular condition has been arrested for a considerable period, is rather large. For this type of tubercular prospective mother, a strict regimen, enforced during the whole period of pregnancy, gives hope of good results. The question often arises whether to allow pregnancy in active tubercular cases to go to term. The violence of the operation for abortion, with its immediate and remote mortality possibilities, is not less unfavorable than allowing patients to go to term without interference. The shock, the loss of blood, and the intoxication of the anesthesia are, perhaps, a more severe burden than the prolonged wear on the mother from the pregnancy. The vitality of the child of an active case of tuberculosis does not, of course, enter into this question. An abortion undertaken with this point in view would be tantamount to an act of euthanasia—and we are hardly ready for that. Besides, tuberculosis is not hereditary. The most that can be transmitted is a susceptibility to the tubercular infection, against which, perhaps, the offspring of such a parent must be especially guarded. This would be a factor whether the father or the mother were tubercular, but to a somewhat lesser degree in the former case. The question of infection with tuberculosis in the offspring of tubercular parents depends upon the amount of actual contact that the child has with its tubercular parents. The sooner it is removed from such contact the less the chances of infection.

The formula has often been advanced that an arrested tubercular mother may have one child with safety, a second child only with danger, but a third one, never. While pregnancy is a physiological process, it is a physiological activity that can be undertaken only by those whose activities are not engaged in overcoming disease processes.

MALIGNANT DEGENERATIONS.

In spite of the tireless work carried on in this connection, the basic causes of malignant disease are as obscure as ever. Yet it is recognized that certain conditions have a tendency to originate malignant disease, and that certain benign growths are prone to malignant degeneration. But these observations are merely clinical, and have no relation of cause and effect. Although any campaign for the prevention of malignant disease is directed against the malignant degeneration of benign growths or irritative conditions, it is erroneous to speak of a precancerous stage, at least in so far as our present knowledge of this disease goes. Nevertheless, it seems clinically that those benign tumors that are composed of elements of all three of the original germinal layers are more prone to malignant degeneration than those tumors composed of single tissue elements. Likewise, when the benign growth is composed of young and undifferentiated cell elements and is present in tissues in which such cell elements are usually alien, the likelihood of malignant degeneration is large. The presence of young cell elements in tissues where older cell elements would be expected often determines the decision on the probable nature of the tumor where that is in doubt, and decides the question of appropriate radical measures in anticipation of future and positive degeneration. The removal of all be-

nign tumors is, of course, impracticable and, in all likelihood, entirely unnecessary, and the removal of sections for laboratory diagnosis is not condoned by every one, on the ground that, if malignant, the cell elements composing the growth will be disseminated through this procedure.

On the other hand, tumors that are on the surface of the body are continually under observation and more easily controlled than those within the body. The campaign against malignant degeneration can have little effect against these, for usually when symptoms of a growth appear the malignant nature is already well established. In any event, it is generally recognized that chronic irritations of any tissue or of benign growths are the most potent causes of malignant degeneration. The malignant degeneration of gastric ulcers, certain uterine conditions, lingual ulcers, etc., is universally accepted as a very strong probability. Perhaps the strongest elements in the campaign to prevent malignancy is the prevention and healing of chronic irritative conditions and the early recognition of actual malignant disease—perhaps even more than the fear of spontaneous degeneration of benign growths.

ANTISEPTICS IN SURGERY.

CARE against the introduction of foreign materials, especially of pathogenic organisms, into the field of operation or into wounds of any nature is still the crux of surgical asepsis upon which is founded so much of the modern progress in surgery. On the other hand, the removal of foreign material or pathogenic organisms once they have made their way into the fields of operation or into wounds, often presents a difficult problem. Yet the use of strong antiseptics for this purpose is now universally condemned. The notion that strong antiseptics will render a wound aseptic by destruction of the pathogenic organisms contained therein is too crude for discussion. The antiseptics that have the power of destroying bacteria in the tissues have the power, likewise, of destroying tissue, and it is the devitalized tissue that furnishes the medium for the growth of pathogenic organisms. The resistance of bacteria is, as a rule, not less than that of the tissues to antiseptics. While healthy, undevitalized tissue must be depended upon for the maximum bactericidal power, devitalized tissue, no matter how brought about, is the most potent factor in infection and delayed healing. The bactericidal power of the tissues is the best antiseptic and must never be interfered with. Besides, it must not be expected that bad surgical technic will be glossed over by antiseptic treatment. Nor is it a fact that antiseptics are better wound cleansers than non-antiseptic solutions. The rapid removal of devitalized tissue will remove the only barrier against the benign action of the bactericidal power of the normal tissues. Kindness in the treatment of the individual tissues by restraining from rough handling or the application of irritant or caustic antiseptics is as efficacious in overcoming intractable wound conditions as is kindness to the individual in overcoming vicious personal inclinations. Abusive scrubbing of the skin or wound with the use of strong antiseptics for sterilization purposes must be relegated to bygone surgery. There is as much technical skill, if not more judgment, required in the treatment of wounds, than in the technic of major surgical operations. The strides in surgery in the present war have been along the lines of reclamation of tissues and members rather than along the lines of heroic surgery, requiring usually the loss of a maximum amount of tissue, and this has been accomplished by conservatism in every phase of surgical procedure rather than otherwise.

MEDICAL NOTES.

HEALTH STANDARDS AND CARE FOR THE IMMIGRANT.—In response to the nation-wide demand for better and more thorough ways of Americanizing the immigrants in the United States, the Carnegie Corporation has undertaken a national study of the methods of Americanization now in use. The work is to be done by ten divisions, which are to conclude the study in a year.

The Division on Health Standards and Care will be under the direction of Michael M. Davis, Jr., Director of the Boston Dispensary. The aim of this particular division is to learn what the health agencies of the United States

are doing to teach the immigrant our American standards of health. A special effort will be made to study methods which have been successful in some localities, and to develop from these recommendations for communities having similar problems. The Division earnestly desires the coöperation of individual physicians, and of hospitals, dispensaries, health departments, nursing and medical associations, industries, and all the national organizations working to promote the public health. Information is sought concerning health conditions and problems among the foreign-born of different races and localities, and concerning methods of health care and education which various organizations have found effective among them. It is hoped that by means of this national survey, material can be secured whch may prove helpful to all the many individuals and groups which are striving to make the immigrant a better American citizen. It is intended to make a special inquiry into alleged serious evils due to quack practice among immigrants.

Mr. Michael Davis will retain his connection with the Boston Dispensary, but will give a considerable share of his time for one year to the national study. The position of Assistant Director has been established by the Boston Dispensary and Mr. Joseph J. Weber has been appointed. Mr. Weber has been connected for some years with the hospital and public health work of the State Charities Aid Association of New York, and for the past twelve months has been executive secretary of the Mayor's Hospital War Service Committee in New York City. He brings to Boston a wide experience in public health service.

Illinois Plan for Tuberculous Soldiers.—The plan adopted by Illinois for providing care for returned tuberculous soldiers is an interesting illustration of a practical working agreement between a State Department of Health, a State Tuberculosis Association, and the American Red Cross. According to the agreement, the Central Division of the American Red Cross, through the Home Service Sections of its local chapters, will provide care for returned tuberculous soldiers in the interim between their return to their home communities and the time that more permanent provision is made for them, and shall provide one-third of the expense for the more permanent care. Immediately upon the return of a tuberculous soldier, the Home Service Section of the American Red Cross will ascertain the essential facts concerning him—his location, physical and financial conditions, his educational standards, and home conditions. An expert examination and diagnosis will be made in the case of each soldier by the Illinois Tuberculosis Association, and reports will be submitted to the State Department of Public Health so far as they may affect the control and prevention of communicable diseases. Under no circumstances will the American Red Cross countenance the housing of a returned tuberculous soldier in a county almshouse, except when absolutely unavoidable. The American Red Cross will pay one-third of the expense of care, and the Illinois Tuberculosis Association will exert all possible influence upon local individuals and public and private organizations to provide for the remaining two-thirds of the cost of permanent care. The Illinois Tuberculosis Association will require of institutions, physicians, or other agencies to whom the care of tuberculous soldiers is entrusted, complete reports of progress.

Malaria in Rumania.—An article in the *Lancet* of March 9, 1918, makes the following interesting statement concerning malaria in Rumania:

"Ever since the time of Ovid, who laments the fevers so prevalent at Tomi (in the Dobrudsha), Rumania has been known to suffer severely from malaria, which overspreads the whole country with its great plains, reedy marshes, and slow rivers liable to widespread inundations. The region most heavily attacked is that between the Sereth and the Pruth, but no part of the country escapes. Sailors used to get higher pay for sailing through the Dobrudsha, so great was the risk of fever, which occurred up in the mountains as well as along the water-courses. Babes reported in 1904 that in 7000 post-mortem examinations he had rarely missed seeing evidence of malarial infection. Cases were as frequent in Rumania as they used to be in Italy, but the less deadly tertian fever was more common. The carrier anopheles are found everywhere. In 1899 it was attempted to dry up the marshes by planting there willows and poplars, but as the uncomprehending peasants delightedly burned the trees for fuel this experiment failed. In 1902 orders were given to embank the rivers to prevent floods and reduce malarial infection, but the good was too little clear, too speculative,

and nothing material was achieved until in 1907 malaria prevention was linked to what people call a practical purpose, and the reclamation of areas liable to floods was undertaken in order to increase the arable acreage, a benefit riparian owners and occupiers could well understand. In 1904 Babes, with his colleagues Cantacuzenu, Sion, and Irimescu were appointed a committee to select some method of quinine prophylaxis, and they chose Koch's system, which directs that 15 gr. of quinine shall be given every ten days. Their report was adopted and results were not long delayed: of 6000 persons protected, only 1% fell sick; of 16,000 left untreated, 18% contracted marsh fever. Although only 2% of the population was reached by this prophylaxis, a great alteration in the situation had been achieved, and malarial fever cases were becoming rapidly fewer when, in 1913, the Bulgarian War distracted all the energies of the country and it began to fall back into its old state of a hundred years ago. Dr. F. Pielsticker declares, however, that the German Army when invading Rumania was able to secure itself against malaria by the prophylactic measures found useful in Macedonia."

WAR NOTES.

TUBERCULOSIS IN THE UNITED STATES ARMY.—Col. George E. Bushnell of Washington, D.C., director of tuberculosis work in the United States Army, announced at the 14th annual meeting of the National Tuberculosis Association, that only .783 of 1% of the men in the army reëxamined since June 6, 1917, are victims of tuberculosis. The Government has made ample provision for the care of such cases and the reclamation of the patients for active work in the industries of the nation.

DR. CARREL'S NEW HOSPITAL IN FRANCE.—Dr. Alexis Carrel, whose hospital at the front was recently destroyed by the Germans, is building a new hospital at Noissiel, where he will continue his experiments and treat the gravest cases of wounded. He is organizing, also, laboratories at St. Cloud, where he will study treatment of hemorrhages.

ONE HUNDRED AND EIGHTY-FOUR SICK AND WOUNDED SOLDIERS LANDED.—One hundred and eighty-four sick and wounded soldiers were landed in the United States during the week ending May 31. They were sent to army hospitals. The previous week sixteen arrived.

DR. HUNT TO HEAD UNIT.—Dr. Barbara Hunt of Bangor, who is to do civilian work in the devastated regions of France, as a member of the American women's hospitals, has been placed in charge of the first unit, which will sail soon. This organization is under the administration of the war service committee of the Medical Women's National Association and has the sanction and coöperation of the Red Cross. The work will be mainly among women, old men and children.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending June 8, 1918, the number of deaths reported was 216, against 224 last year, with a rate of 14.36, against 15.12 last year. There were 39 deaths under one year of age, against 31 last year.

The number of cases of principal reportable diseases were: diphtheria, 45; scarlet fever, 10; measles, 280; whooping cough, 60; typhoid fever, 1; tuberculsois, 72.

Included in the above were the following cases of non-residents: diphtheria, 5; measles, 3; whooping cough, 1; typhoid fever, 1; tuberculosis, 11.

Total deaths from these diseases were: diphtheria, 2; measles, 1; whooping cough, 3; tuberculosis, 27.

Included in the above were the following non-residents: diphtheria, 1; tuberculosis, 1.

APPOINTMENT OF DR. COON.—Dr. William Coon, of Haverhill, has been appointed director of health and sanitation for the United States Shipping Board. He will have his headquarters at Philadelphia, and will have charge of health and sanitation in all the shipbuilding yards in the country.

TRAINING SCHOOL OF PSYCHIATRIC SOCIAL WORK.—The Training School of Psychiatric Social Work, conducted by Smith College, Northampton, and the Psychopathic Hospital, Boston, is under the auspices of the National Committee for Mental Hygiene, and is designed as a war emergency course. Its purpose is to prepare social workers to assist in the rehabilitation, individual and social, of soldiers suffering from nervous and mental diseases, including war-neuroses and the so-called "shell-shock." Aside from the war contingency, these workers would also be of permanent value in civilian neuropsychiatric work as assistants to hospitals, courts, schools, out-patient departments, and social agencies.

The value of this special division of social work has been demonstrated in the care of neuroses of civil life in a number of out-patient departments. The demand for such workers should be met by immediate preparation.

The length of the course is eight months. The academic instruction will be given at Smith College from July 8 to August 31. The practice work will be given at various centers where there are opportunities for social work with psychiatric cases under direction of trained social workers. The major studies in the course will be sociology, including methods of social case work, psychology, and social psychiatry. Minor studies will include hygiene, occupational therapy, military usage, and the writing of records and reports.

Industrial Health Conference.—At a conference recently held in New Bedford, under the auspices of the State Board of Labor and Industries and the Massachusetts Medical Society, the principal subject discussed was industrial health, from the standpoints of both the employee and the employer.

State Association of Nurses.—The 15th annual meeting of the Massachusetts State Nurses' Association was held on June 11, at 525 Boylston Street. Sessions were held by the Massachusetts League of Nursing Education and the Private Duty Nurses' League. All nurses in war service were asked to send notice of address and assignment to the corresponding secretary, Miss E. P. Davis, 21 Walnut Avenue, Norwood, Massachusetts. As a war measure, the annual Red Cross dinner was omitted this year.

New England Deaconess Association.—The New England Deaconess Association has submitted its annual report for the year 1917. In May, the General Deaconess Board held an annual convention. In September, one of the most profitable meetings of the year, the "Round Table Convocation," was held. This year, for the first time, deaconessess, other than superintendents, have served on the Board of Managers: this has increased the efficiency of the Board. In response to war needs, fifty hospital beds were offered to the Government for the care of needy soldiers and sailors: a portable ward has been erected on the hospital grounds for this purpose. Plans have been made for fresh air work at the Haverhill Home. The report includes mention of the activities of the Training School for Christian Service, the Home in Boston, the hospitals in Boston and Concord, and the Home for Aged Methodist Women.

Certain Dietary Essentials.—The Massachusetts Public Health Bulletin for April, 1918, contains an interesting article entitled, "Certain Dietary Essentials." It describes the ideal diet as one which supplies, in the most palatable and easily digested form, all of the body requirements. Besides the generally recognized constituents,—plenty of water, protein, energy-forming foods, mineral substances, and a sufficient amount of coarse food,—there are two other substances, called fat-soluble A and water-soluble B, which an adequate diet must contain. A lack of these two substances results in beriberi and serious eye disease, causes failure of normal growth and development, and makes the individual less resistant to disease. Water-soluble B is contained in nearly all of our common foodstuffs. In order, however, to include fat-soluble A, milk fats, egg yolk, leaf vegetables, or animal organs, must be present in the diet. Of these, whole milk is the most economical and valuable, for it is easily obtainable and contains not only fat-soluble A, but also water-soluble B, protein, mineral substance, and sugar.

NEW ENGLAND NOTES.

Maine Physicians Elect New Officers.—The house of delegates of the Maine Medical Association have elected the following officers:

President, Dr. C. M. Coombs of Waldoboro; vice-presidents, Dr. John Sturgis, Auburn; Dr. Charles W. Bell, Strong; secretary and treasurer, Dr. B. L. Bryant, Bangor; council of delegates, Dr. John F. Thompson, Portland; Dr. E. V. Call, Lewiston; Dr. Byron F. Barker, Bath; Dr. Oliver W. Turner, Augusta; Dr. W. N. Minor, Calais, and Dr. Charles H. Burgess, Bangor.

Health Survey of Middletown, Conn.—A recent health survey of Middletown describes the sanitary conditions of the city, and offers numerous suggestions for improvements. The water supply ought to be made safer by chlorination, supplemented by weekly bacteriological

examinations. Sewage wastes ought to be better disposed of; all refuse should be effectively screened from flies and mosquitoes. Concerning organization, it is suggested that a board of health be created with full powers to make regulations to safeguard public health. One man, at least, should be fully trained for the work and should give his whole time to it; all details of administration and appointment of subordinate officers should be in the hands of this health officer. It is recommended that the medical inspection of school children be transferred from the Board of Education to the Department of Health. In the control of communicable diseases, it is advised that prompt reporting of such diseases as diphtheria, typhoid fever, and tuberculosis be insisted upon. Fumigation after the termination of such a disease, because it is costly and not effective, should be abandoned. Isolation of patients and proper placarding should be continued. It is recommended that a public health nurse be appointed to visit cases of communicable disease and teach the proper methods of isolation of the sick.

Further recommendations are: steps should be taken by the Health Department for the systematic detection and control of "carriers;" the supervision of the sanitary conditions of meat and other food products sold in Middletown should be extended and systematized; the town should provide a small slaughter house; there should be more frequent inspections of the farms and more frequent bacteriological analyses of milk; a rigid system of licensing milk dealers and grading milk should be instituted; efforts should be made to secure the efficient pasteurization of milk. The report describes infant welfare work, and recommends that the Health Department initiate a movement for the improvement of obstetric service by systematic supervision and education. Organized campaigns should be instituted for the control of tuberculosis and venereal diseases. The report contains statistics concerning the finances, population, death rate, and diseases of Middletown.

Obituary.

CHARLES HERBERT WILLIAMS, M.D.

CHARLES HERBERT WILLIAMS, M.D., died at Cambridge, June 9, 1918, of heart disease, aged 68 years.

Dr. Williams was born in Boston, April 19, 1850, the eldest son of Dr. Henry W. Williams, the first professor of ophthalmology in the Harvard Medical School. He was graduated from Harvard, A.B., in 1871, and M.D. in 1874, then spending several years in Europe, studying ophthalmology and settling in practice in Boston with his father. He did some pioneer work in color blindness. He married Caroline Fisher, daughter of George J. Fisher of Brookline, in 1884, and the following year accepted a position with the Chicago, Burlington and Quincy Railway as director of its medical and health insurance interests. Returning to Boston in 1895, he resumed the practice of ophthalmology with his brother, Dr. E. R. Williams, residing in Milton. He was possessed of great mechanical ability and was most successful in the diagnosis and treatment of errors of refraction. Among the medical societies in which he held membership were the American Ophthalmological Society, Chicago Ophthalmological Society, American Medical Association, Massachusetts Medical Society.

Dr. Williams is survived by his widow and two children.

Correspondence.

A PROTEST AND A DEFENSE.

Fall River, Mass., June 7, 1918.

Mr. Editor:

In looking over the issue of the JOURNAL this week I am pained and surprised to find, under the title of "Correspondence," a letter from the pen of George W. Holmes of Boston, casting aspersion upon the ability and name of Dr. M. N. Tennis, a member of The Massachusetts Medical Society and a roentgenologist of high ability.

I thought the day had passed when petty jealousies and low methods could be brought into the JOURNAL for discussion. I am a member of the staff of the Union Hospital, Fall River, Mass., and Dr. Tennis was for a number of years roentgenologist at that institution. It seemed to me that the time had passed when a clique or cliques could dictate as to who would practice medicine or roentgenology in a city.

It was always my opinion that Democracy meant freedom of thought and work, but this letter reveals that we have in Boston a certain unwritten provision that "You shall not pass" unless *we* say so.

Please give this letter the same prominence that you accorded Dr. Holmes', because I believe, and a great many men who have consulted with Dr. Tennis also believe, that this is an attack upon his character and ability. In other words, the letter would give the impression that he was not honest and had no ability, but of course this is far from the truth, and it is to be regretted that an attack of this nature should be allowed to creep into the JOURNAL.

Yours very truly,

E. A. MCCARTHY, *M.D., President,*
Fall River Medical Society.